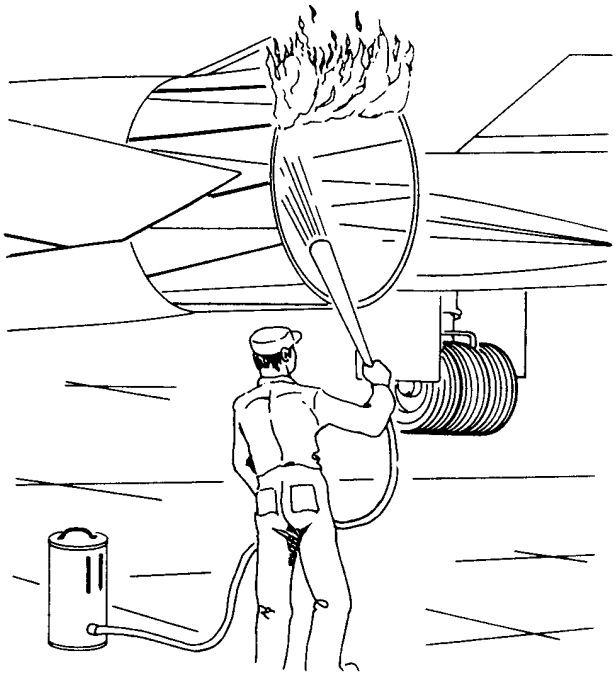
(b)(3)

15 June 1965

To : All Holders of "F-12 Emergency Ground Procedures Manual"

From : [redacted]

The attached illustration is a changed page that is to be inserted into your F-12 Emergency Ground Procedures Manual (s), copy number (s) 3 and 4 . Please remove and destroy existing illustration and replace with the attached.



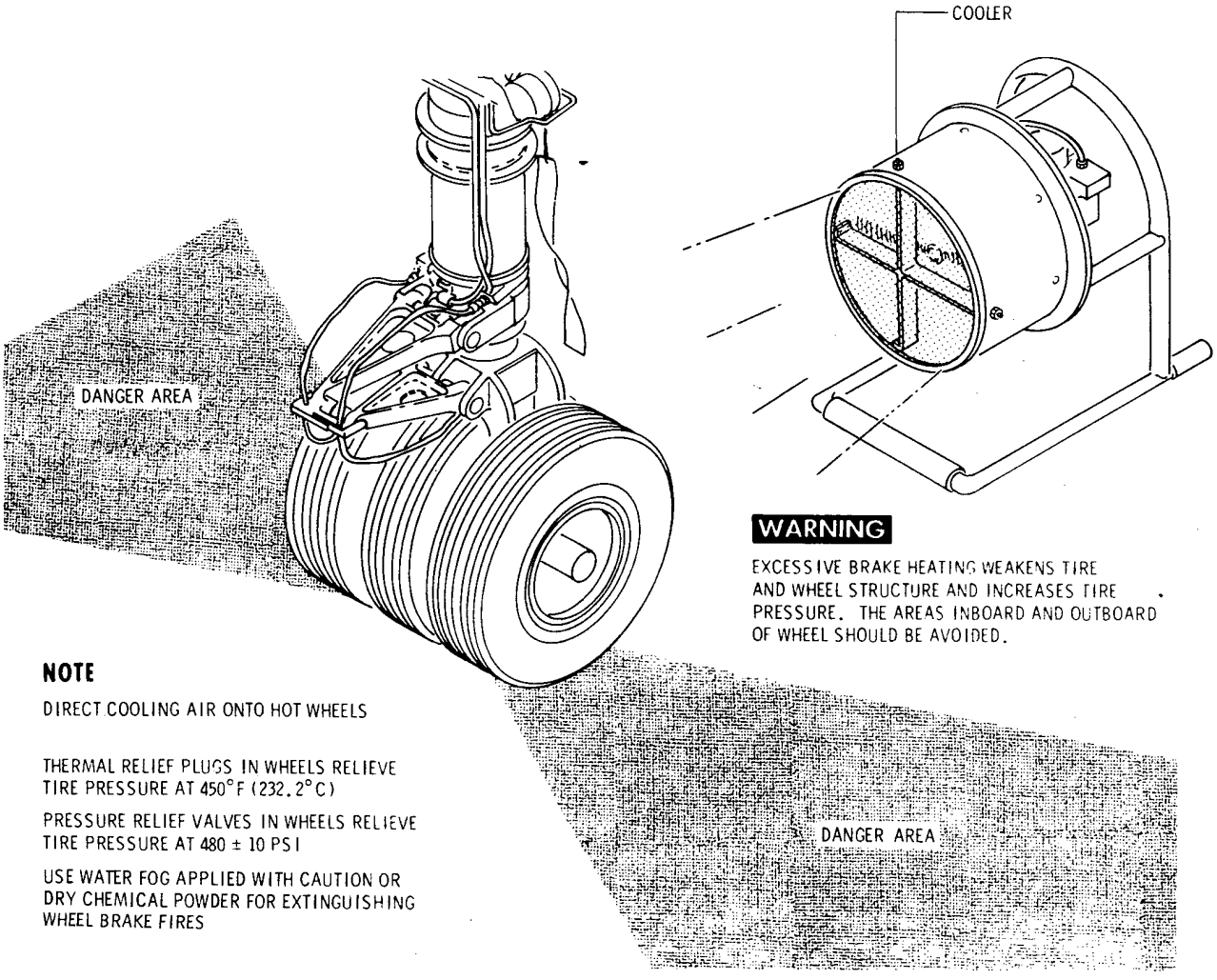
TAIL PIPE FIRES

TAIL PIPE FIRES USUALLY RESULT FROM EXCESS FUEL COLLECTING IN THE AFTERBURNER SECTION AFTER SHUT-DOWN, OR DURING STARTING CYLCLES. IN CASE OF FIRE (WITH GROUND START UNIT ENGAGED) PROCEED AS FOLLOWS.

1 THROTTLE OFF.

2 EMERGENCY FUEL SHUT-OFF VALVE: (GUARD UP)

3 IF POSSIBLE, MAINTAIN STARTING OPERATION UNTIL ALL EVIDENCE OF FIRE HAS DISAPPEARED. IF FIRE DOES NOT BLOW OUT OR PERSISTS, DISCONTINUE START OPERATION AND FIGHT AS OIL FIRE BY APPLYING CO_2 IN SHORT BURSTS INTO AFTERBURNER SECTION.



WARNING

EXCESSIVE BRAKE HEATING WEAKENS TIRE AND WHEEL STRUCTURE AND INCREASES TIRE PRESSURE. THE AREAS INBOARD AND OUTBOARD OF WHEEL SHOULD BE AVOIDED.

NOTE

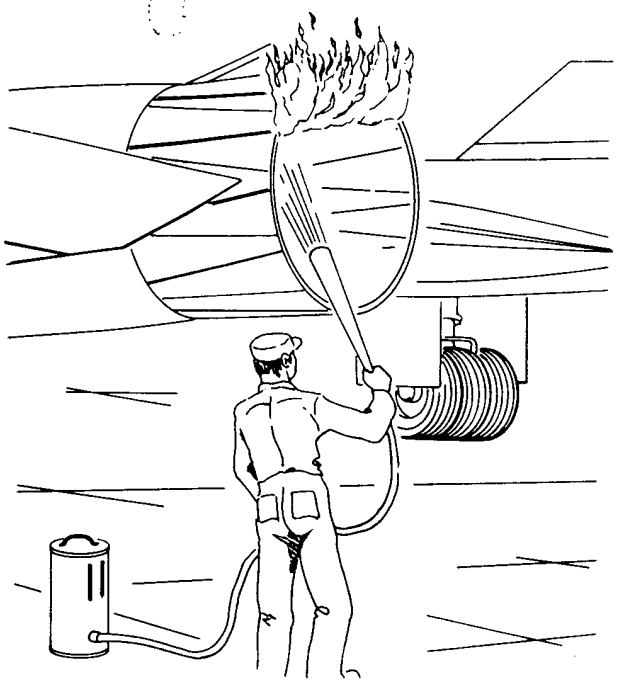
DIRECT COOLING AIR ONTO HOT WHEELS

THERMAL RELIEF PLUGS IN WHEELS RELIEVE TIRE PRESSURE AT 450°F (232.2°C)

PRESSURE RELIEF VALVES IN WHEELS RELIEVE TIRE PRESSURE AT 480 ± 10 PSI

USE WATER FOG APPLIED WITH CAUTION OR DRY CHEMICAL POWDER FOR EXTINGUISHING WHEEL BRAKE FIRES

Figure 2-5. Engine and Wheel Brake Fires. (Sheet 2 of 2)



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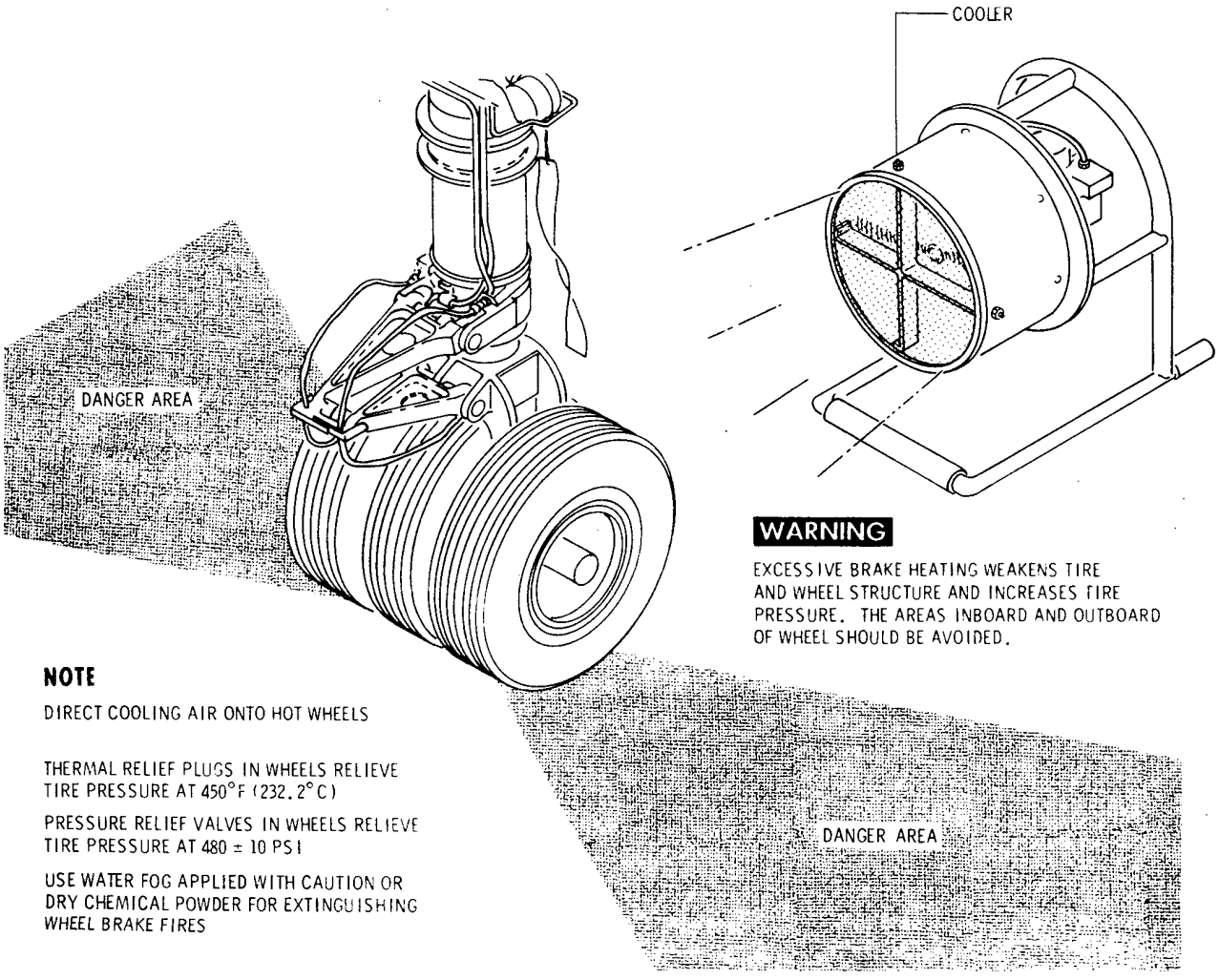

WARNING

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USE WATER FOG APPLIED WITH CAUTION OR DRY CHEMICAL POWDER FOR EXTINGUISHING WHEEL BRAKE FIRES

Figure 2-5. Engine and Wheel Brake Fires.
(Sheet 2 of 2)

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EMERGENCY GROUND PROCEDURES MANUAL

TABLE OF CONTENTS

SECTION I

GENERAL INFORMATION

TABLE OF CONTENTS

SECTION I

GENERAL INFORMATION

LIST OF ILLUSTRATIONS

1-1. GENERAL INFORMATION.

1-2. General Arrangement. (See Figure 1-1.)

1-3. Ground Safety Precautions.

1-4. The safety precautions and emergency procedures contained in Section II and illustrations provided must be strictly adhered to to prevent injury to personnel and damage to the aircraft.

1-5. Ground Handling.

1-6. The Ground Handling section, Section III, contains information and illustrations as to the handling of aircraft during emergency ground operations. This information includes instructions on towing, pneumatic bag lifting and hoisting the aircraft.

CAUTION

All ground rescue crews shall wear asbestos suits and gloves due to the possibility of encountering hot aircraft structure resulting from high speed flight.

1-7. Access Openings.

1-8. Figure 1-2 will locate and identify emergency access panels and openings on the upper and lower surfaces of the aircraft fuselage and wings.

1-9. Runway/Taxiway Strength Capabilities.

1-10. In order to determine if this aircraft can taxi on existing taxiways or land on existing runways, the following data is provided:

a. MLG Tire Foot Print 50 inches^2 per tire.

b. Tire Pressures 365 psig. (Dry Nitrogen)

c. MLG Load per tire 17,500 lbs.

d. NLG Load per tire 9,800 lbs.

e. UCI Index, over 300.

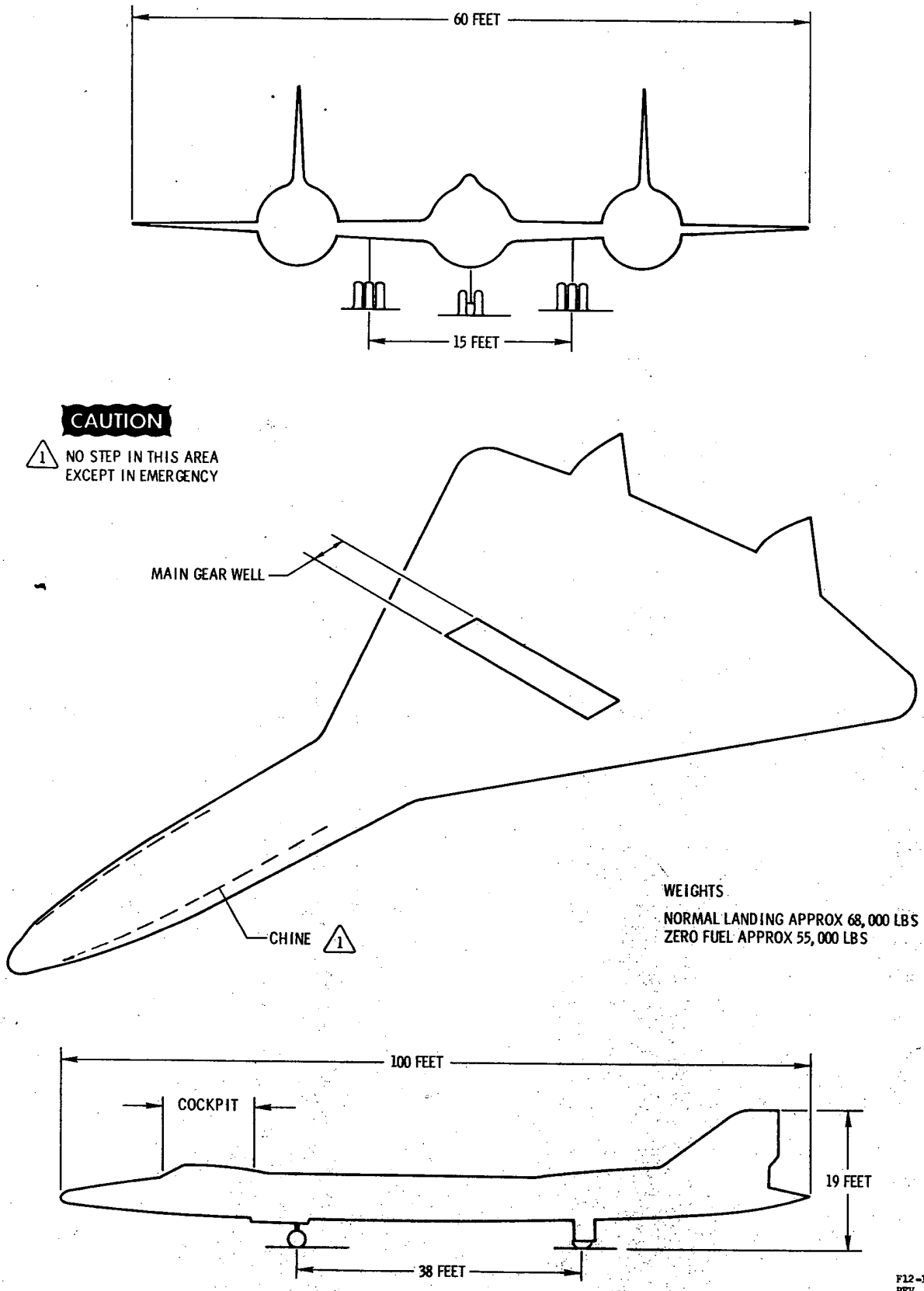
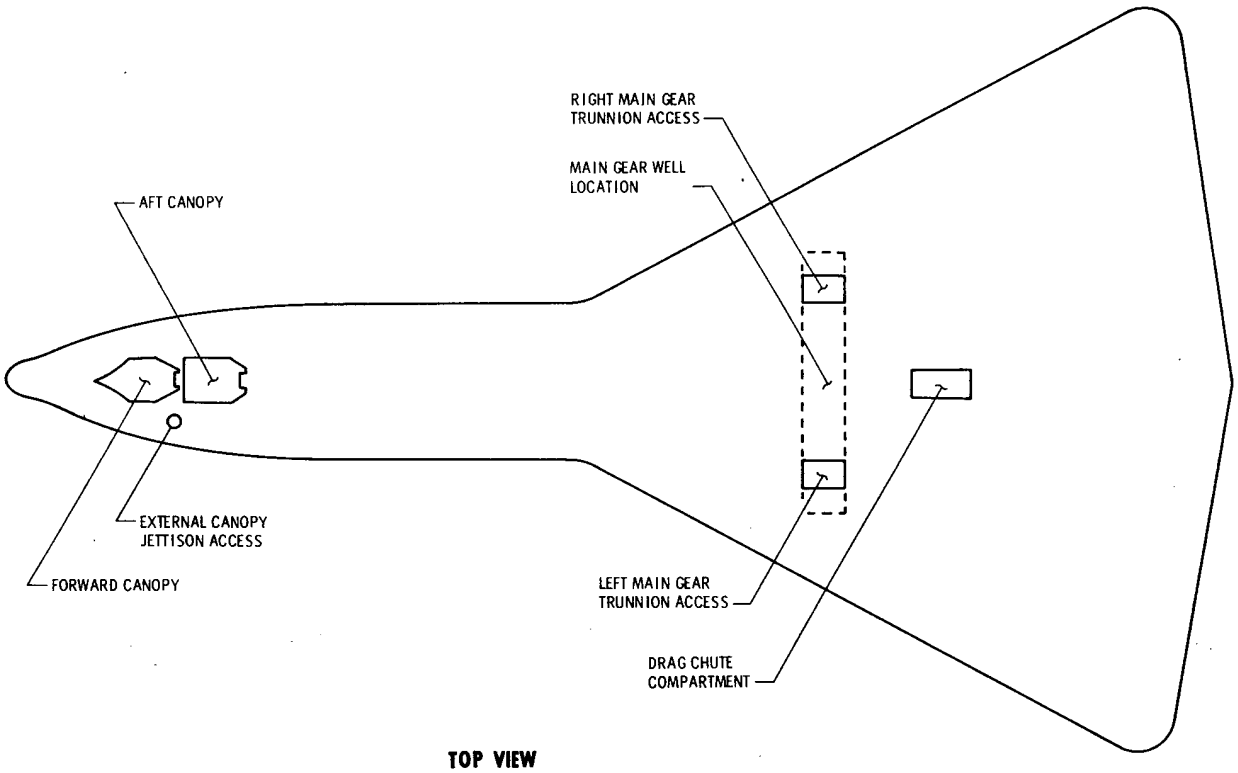
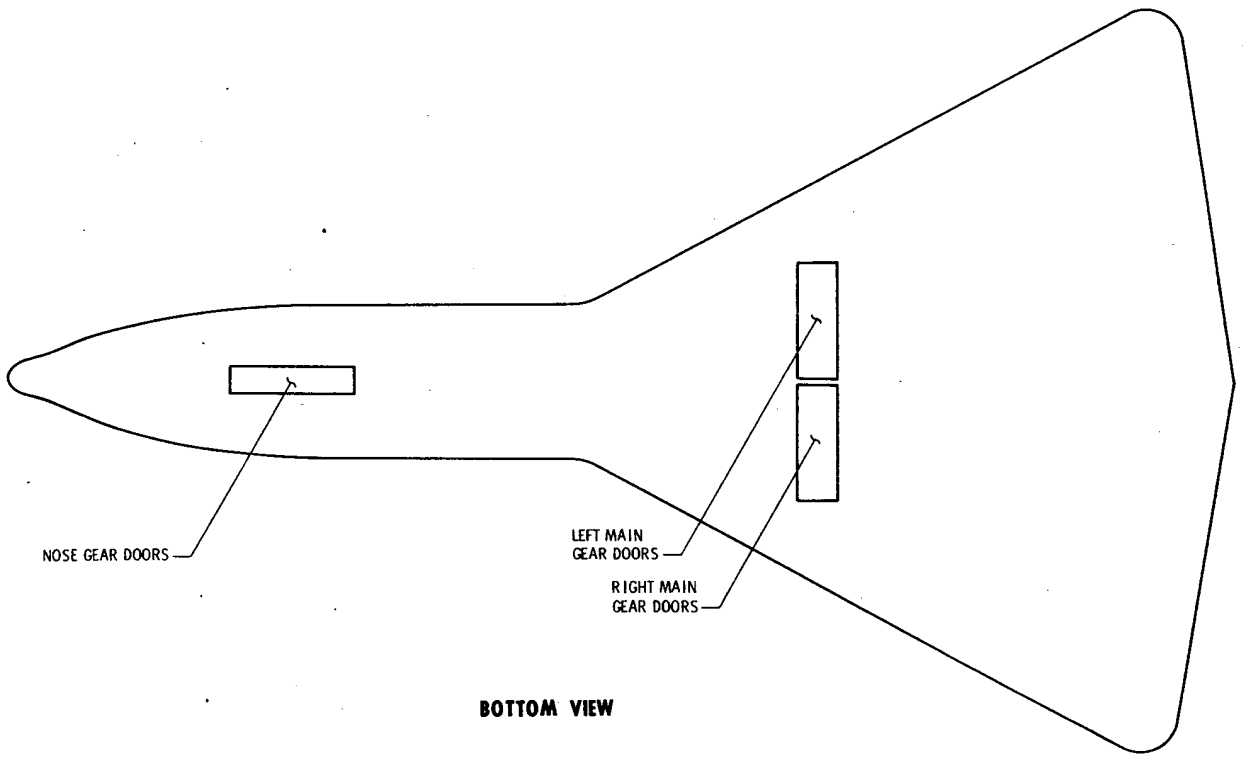


Figure 1-1. General Arrangement.



TOP VIEW



BOTTOM VIEW

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Figure 1-2. Emergency Access Panels.

SECTION II

SAFETY PRECAUTIONS AND EMERGENCY PROCEDURES

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SECTION II

SAFETY PRECAUTIONS AND EMERGENCY PROCEDURES

LIST OF ILLUSTRATIONS

2-1. SAFETY PRECAUTIONS AND EMERGENCY PROCEDURES.

2-2. Ground Safety Precautions.

2-3. Internal Safety Devices. (See Figure 2-1.)

2-4. External Safety Devices. (See Figure 2-2.)

2-5. Crash Rescue Procedures.

2-6. All safety precautions listed in the following paragraphs and illustrations shall be strictly adhered to to prevent injury to all personnel involved.

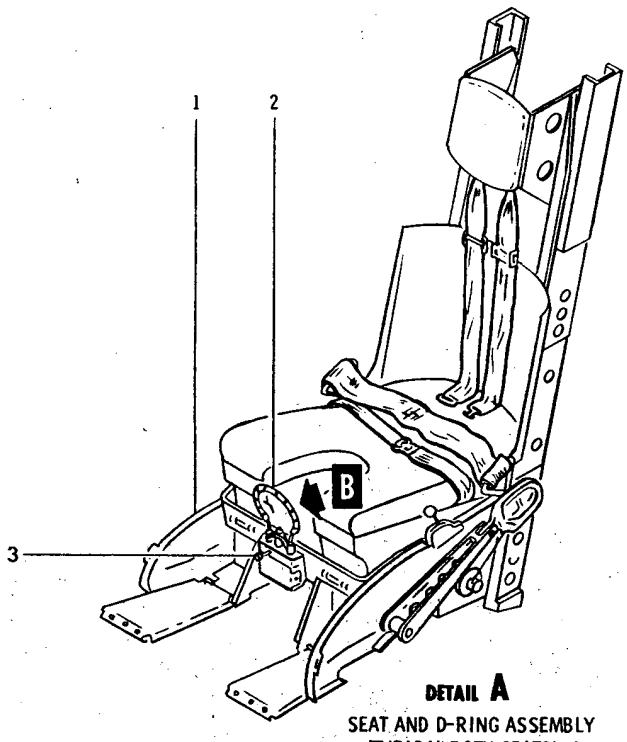
Note

The following information is intended for crash site use to assist rescue crews in determining the most practical and safest way to aid flight crew members in evacuating the aircraft.

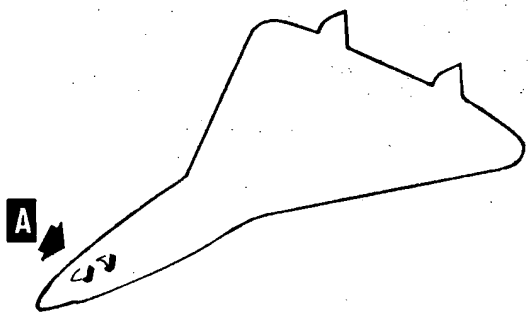
2-7. Crash Rescue Markings. (See Figure 2-3, Sheet 1.)

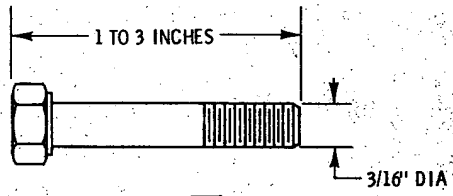
2-8 Crash Rescue Procedures.

2-9. Removal of canopies by the external jettison method is the primary means of gaining immediate access to the cockpit. (See Figure 2-3, Sheet 2.)

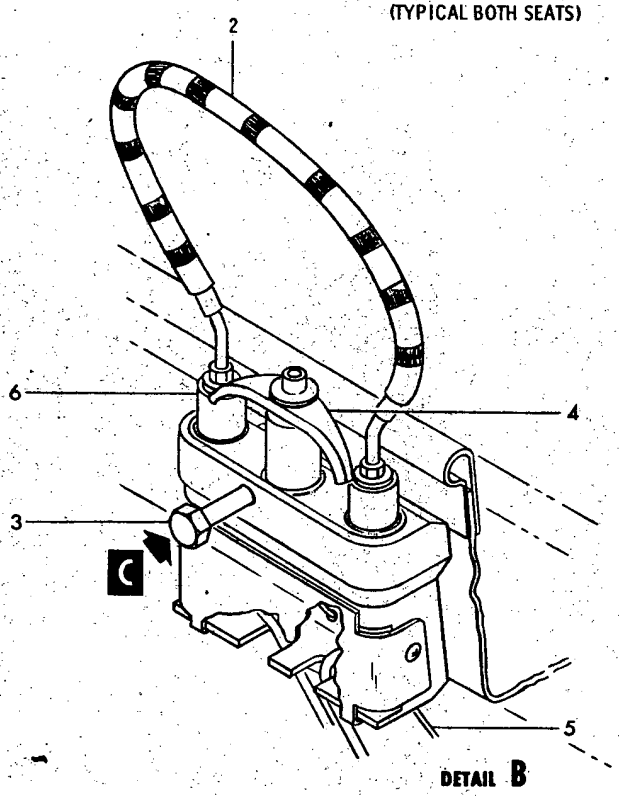


DETAIL A
SEAT AND D-RING ASSEMBLY
(TYPICAL BOTH SEATS)





DETAIL C



DETAIL B
D-RING BRACKET AND SAFETY BOLT LOCATION
(TYPICAL BOTH SEATS)

1 EJECTION SEAT ASSEMBLY
2 D-RING HANDLE (PRIMARY)
3 BOLT (1/4" DIA)
4 TEE HANDLE (SECONDARY)
5 INITIATOR CABLE
6 EXTENSION CYLINDER AND TUBE
(2 PLACES EACH ASSEMBLY)

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Figure 2-1. Internal Safety Devices.
(Sheet 1 of 3)

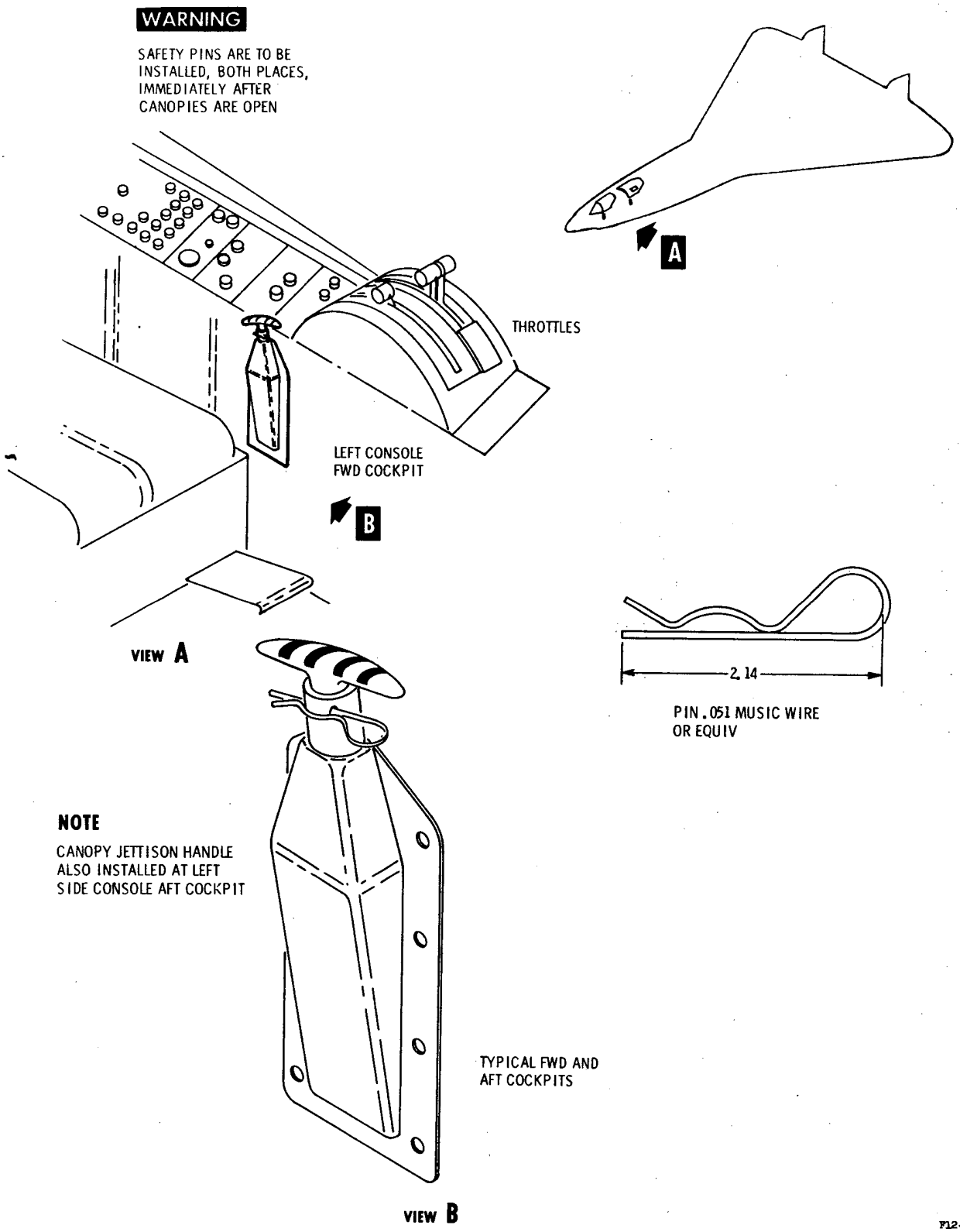


Figure 2-1. Internal Safety Devices.
(Sheet 2 of 3)

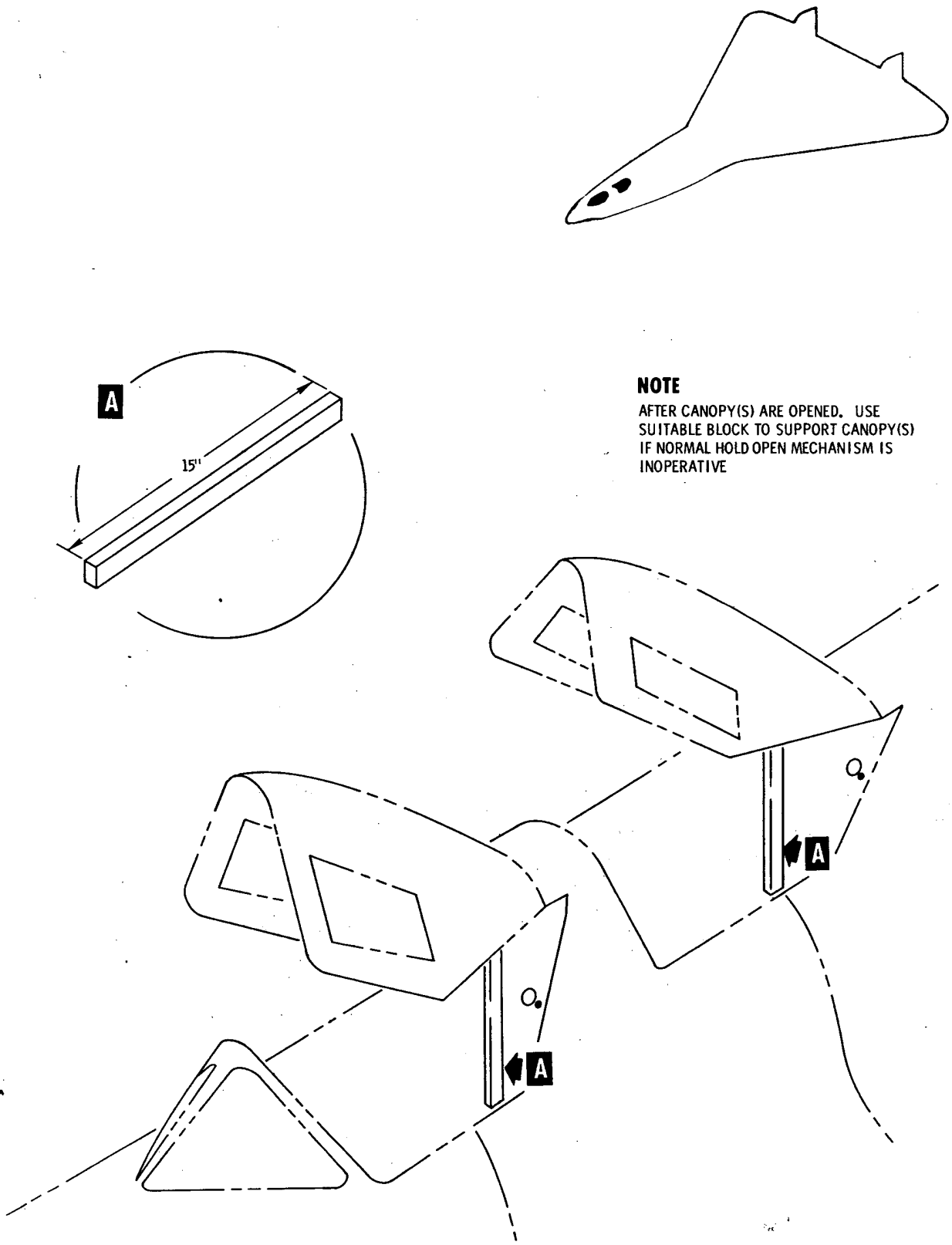


Figure 2-1. Internal Safety Devices.
(Sheet 3 of 3)

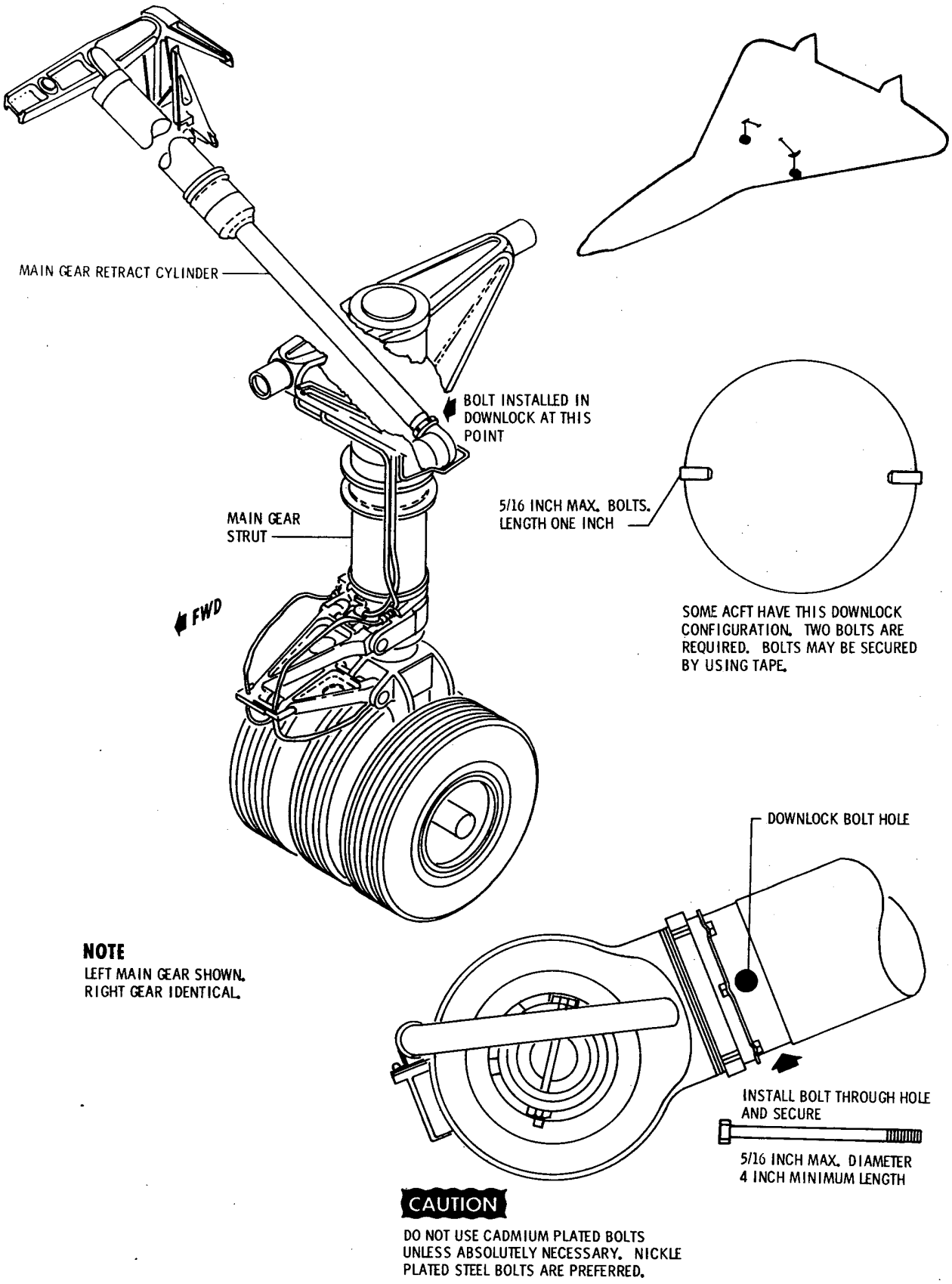
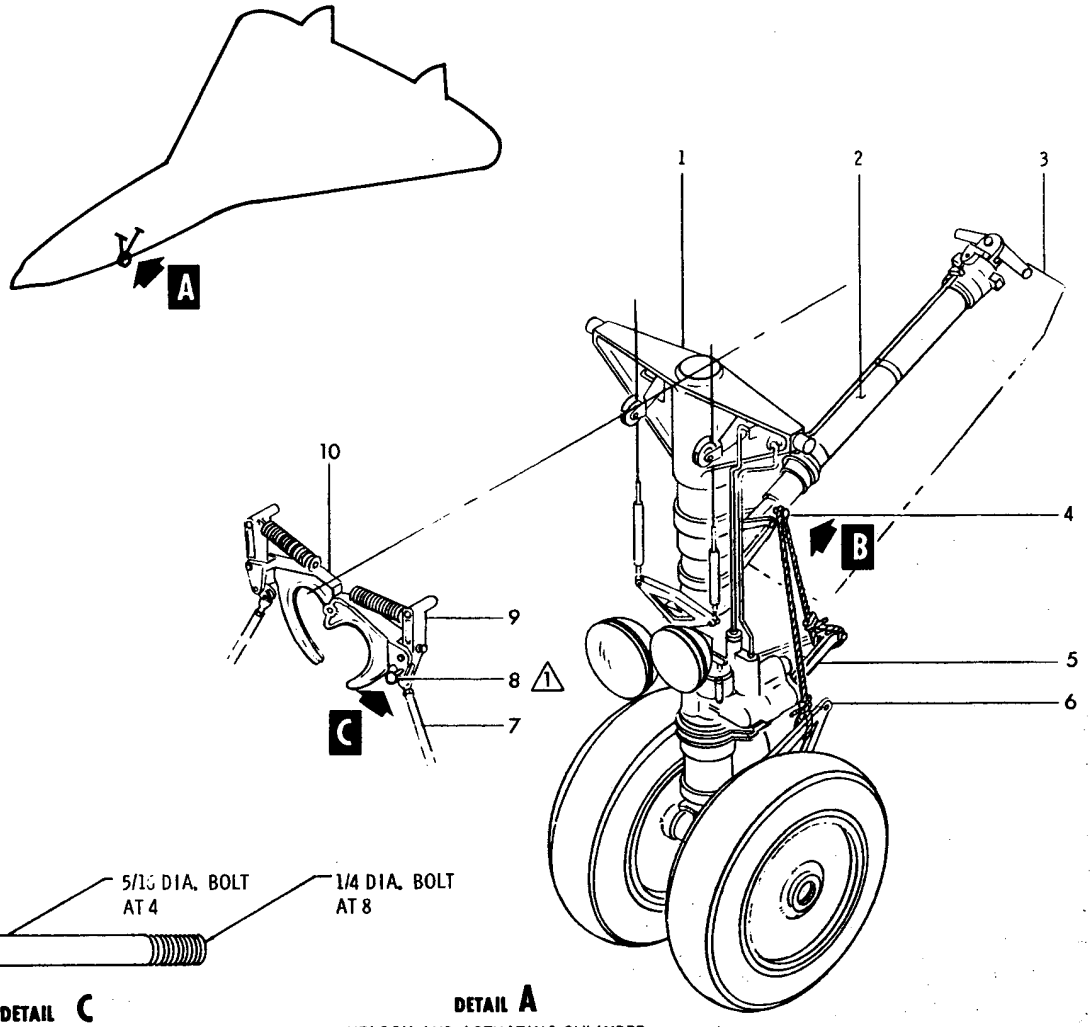


Figure 2-2. External Safety Devices.
(Sheet 1 of 2)



NOTE

⚠1 TO BE USED WHEN WORKING IN WHEEL WELL ONLY.

1 NOSE LANDING GEAR ASSEMBLY
2 ACTUATING CYLINDER (DRAG STRUT)
3 GEAR DOOR (AFT)
4 SAFETY BOLT (ACTUATING CYLINDER)
5 SCISSORS (UPPER)
6 SCISSORS (LOWER)
7 ROD ASSEMBLY
8 SAFETY BOLT (DOOR MECHANISM)
9 LEVEL
10 UPLOCK ASSEMBLY
11 DOWN LOCK BOLT HOLE LOCATION

Figure 2-2. External Safety Devices.
(Sheet 2 of 2)

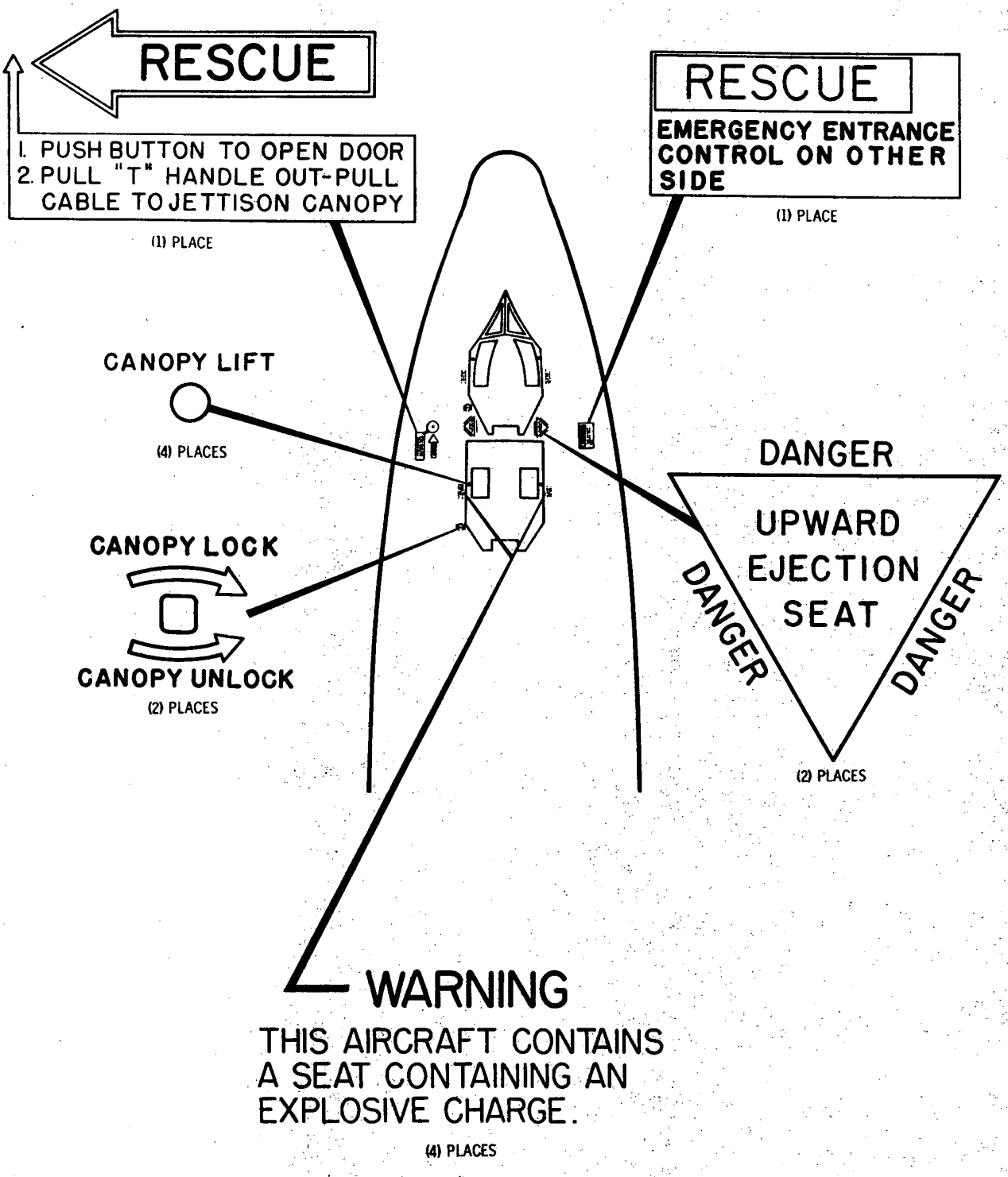


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Figure 2-3. Crash Rescue Procedures.
(Sheet 1 of 9)

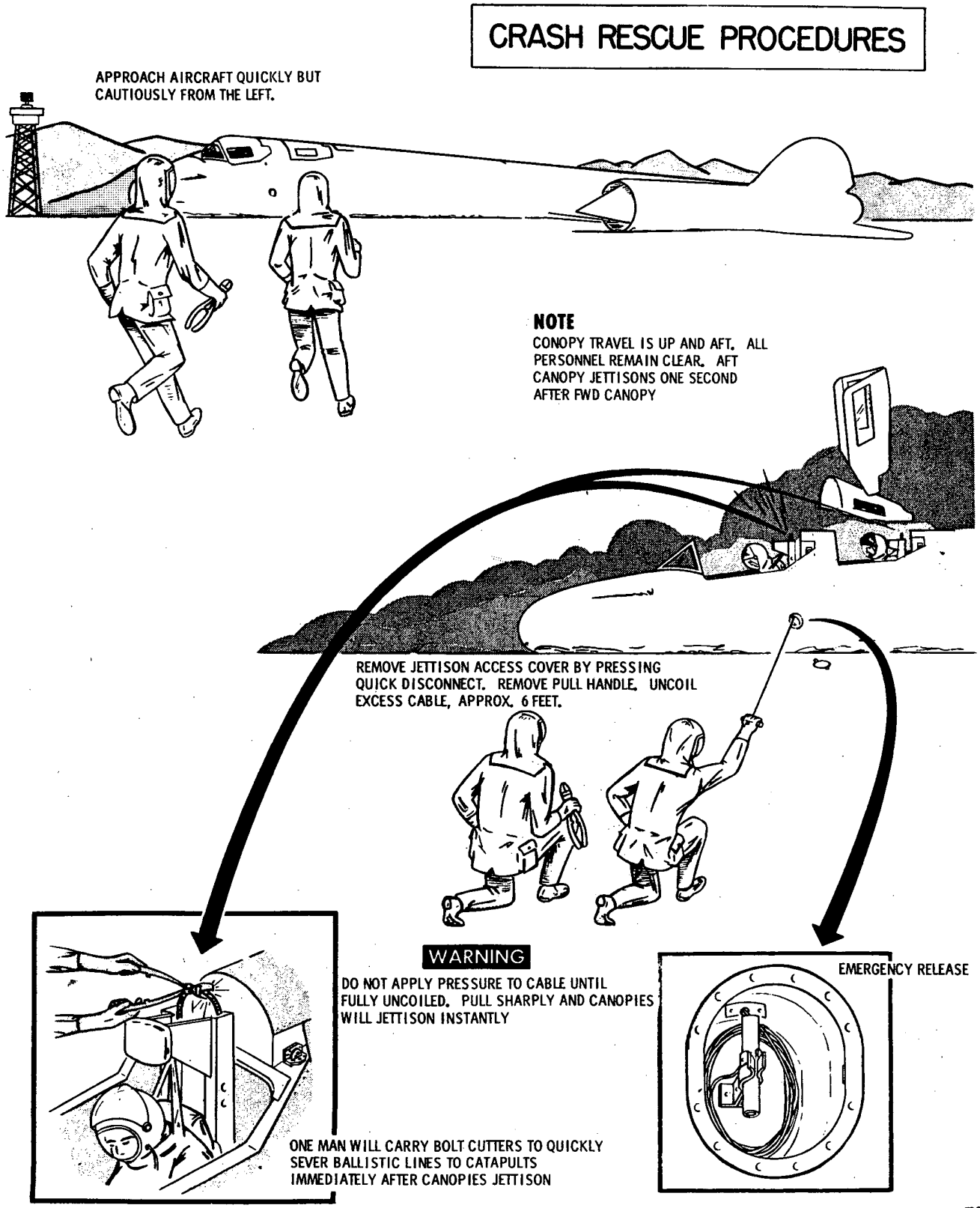


Figure 2-3. Crash Rescue Procedures.
(Sheet 2 of 9)

2-10. Conditions existing during an emergency could possibly dictate the method required to remove the canopies. To remove both canopies employing the manual opening mechanism, see Figure 2-3, Sheets 3 and 4.

2-11. Forcible Cockpit Entry. (See Figure 2-3, Sheet 5.)

2-12. Currently a study is under way to determine the most practical and safest means of forcible cockpit entry.

WARNING

A hazardous condition exists regardless of the method used to open and remove the canopies. It is imperative that ballistics lines to ejection seat catapults be severed immediately upon gaining access to the cockpits.

2-13. Once access to the cockpits is possible, rescue personnel can begin immediately with flight crew removal porcedures. (See Figure 2-3, Sheet 6.)

2-14. Procedures as shown in Figure 2-3, Sheet 6, represent the quickest and safest method of releasing both pilot and FCO from arresting harness, emergency equipment, seat and subsequent removal from the cockpits.

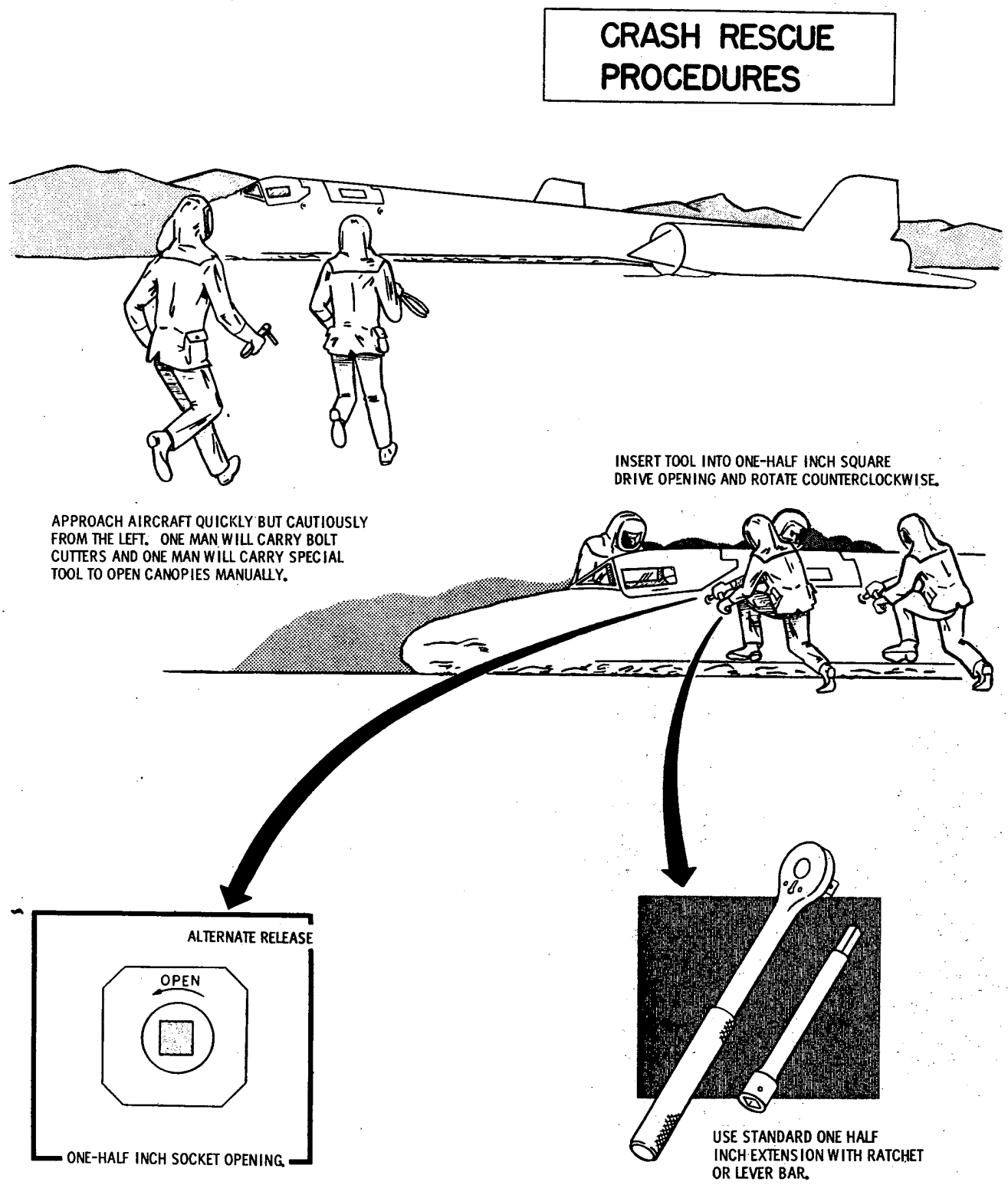
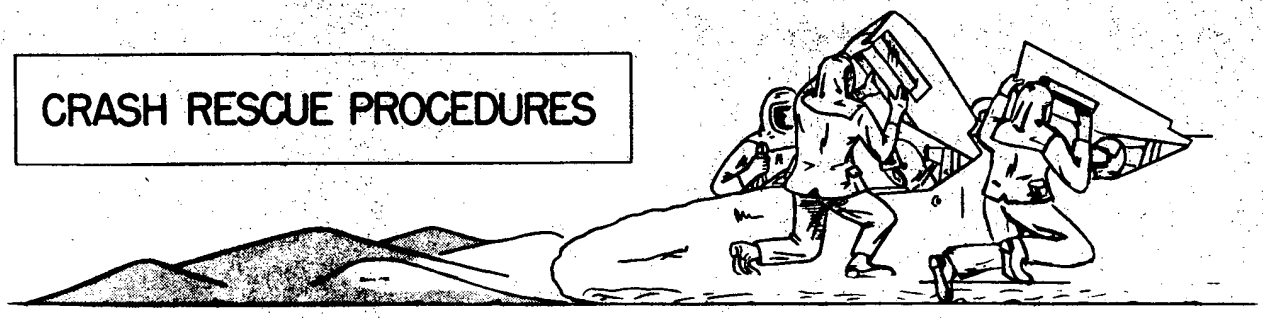
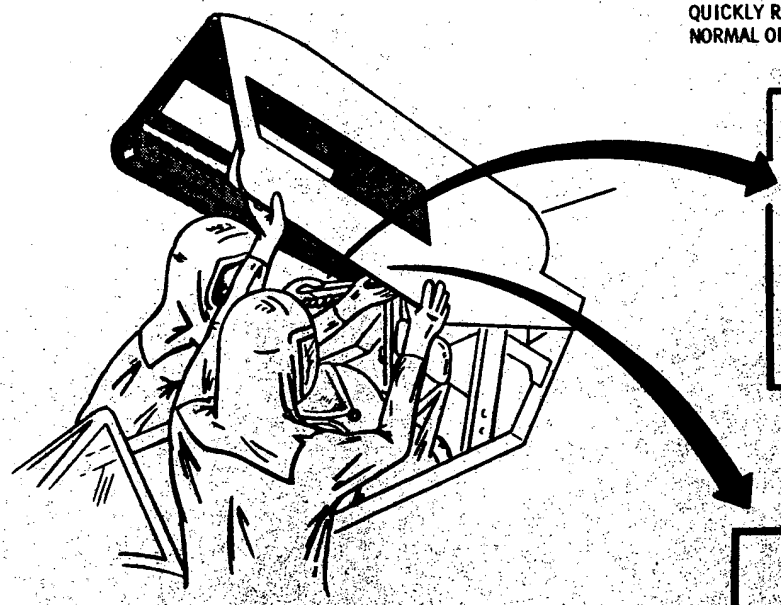


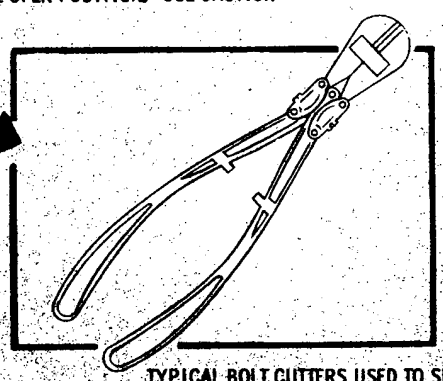
Figure 2-3. Crash Rescue Procedures.
(Sheet 3 of 9)

CRASH RESCUE PROCEDURES



QUICKLY RAISE CANOPIES TO THEIR NORMAL OPEN POSITION. USE CAUTION

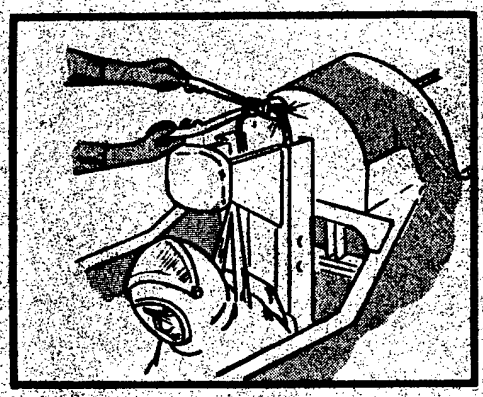


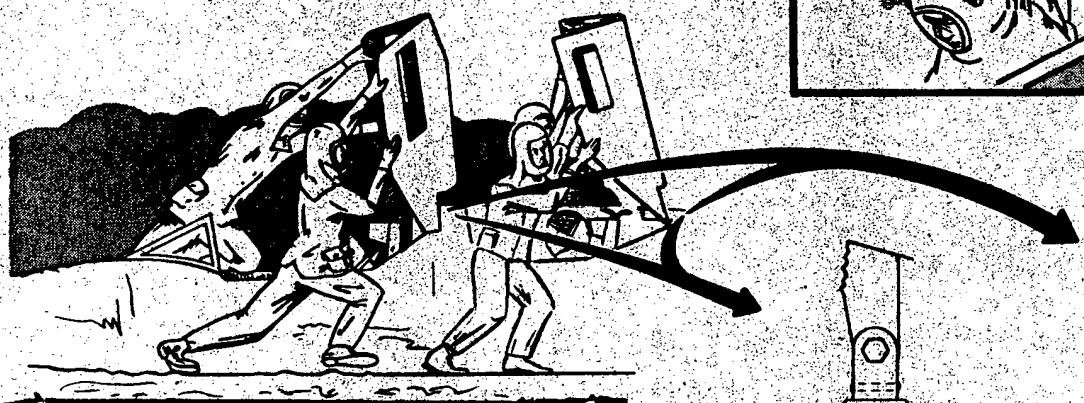


TYPICAL BOLT CUTTERS USED TO SEVER BALLISTIC LINES TO BOTH CATAPULTS

WARNING

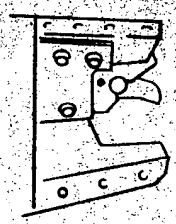
IMMEDIATELY SEVER BALLISTIC LINES TO CATAPULTS WHEN CANOPIES ARE OPENED





TWO MEN SHALL GRASP CANOPIES AT THE MOST FORWARD POINT, HOLDING FIRMLY ROTATE EACH ABOUT THE HINGE LINE. FWD CANOPY (155 LBS) MAY BE THROWN LEFT OR RIGHT FROM THE VERTICAL POSITION. USE CAUTION! AFT CANOPY (135 LBS) MAY ALSO BE THROWN TO LEFT OR RIGHT FROM THE VERTICAL POSITION.

CANOPY HINGE PIN WILL SHEAR WHEN CANOPY IS FORCED AFT.



RIVET WILL SHEAR FROM CANOPY ACTUATOR WITH CANOPY FORCED AFT.

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Figure 2-3. Crash Rescue Procedures

Forcible Cockpit Entry.

(To be added when available)

Figure 2-3. Crash Rescue Procedures.
(Sheet 5 of 9)

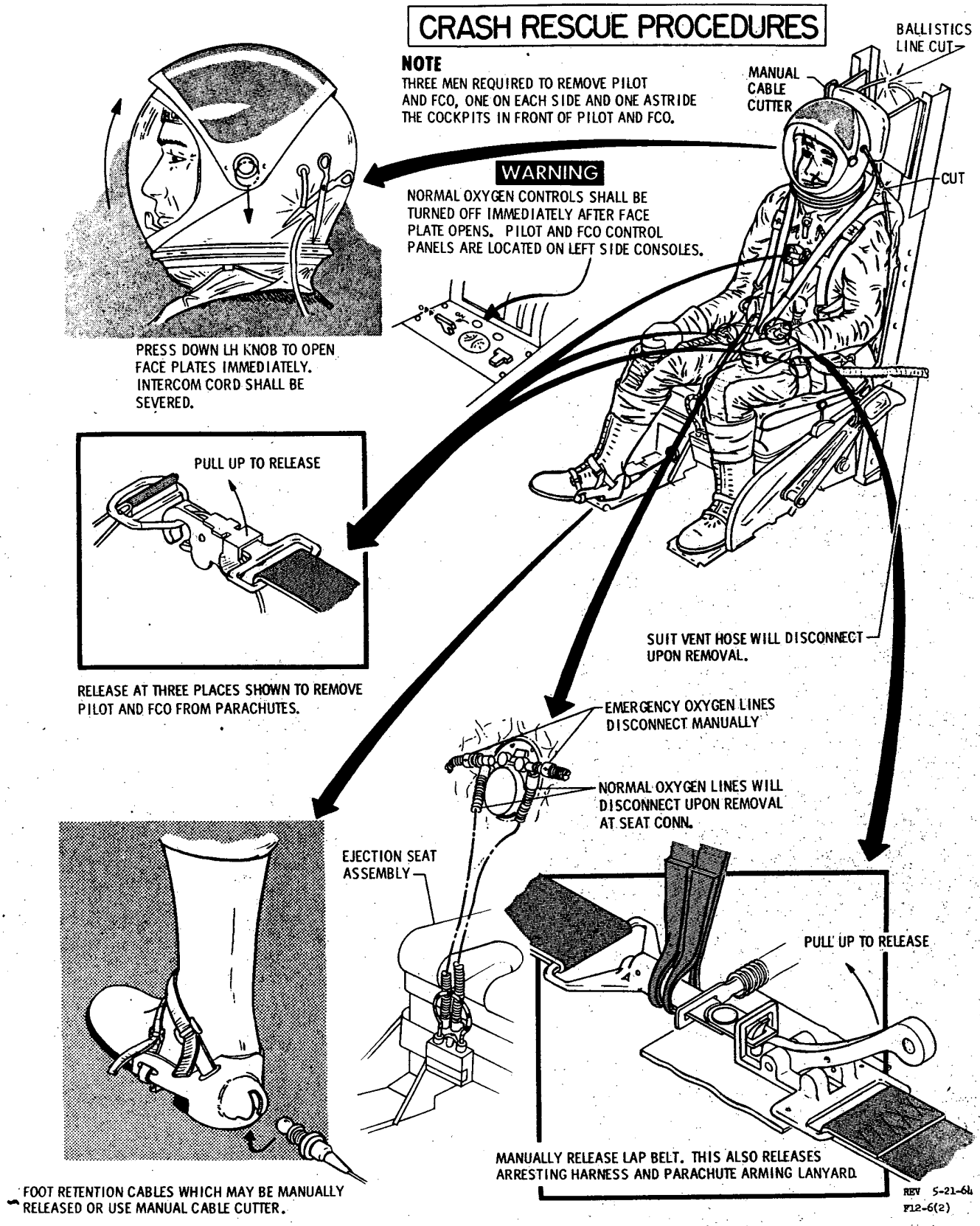


Figure 2-3. Crash Rescue Procedures.
(Sheet 6 of 9)

Notes

a. The intercom cord is designed to disconnect with an 18 pound pull, however, this cord should be severed to prevent any interference during removal.

b. The helmet face plate could require up to two minutes for automatic opening after the oxygen supply is shutoff. Press the left knob on helmet down and open face plate immediately.

2-15. Pressure Suit Handling. (See Figure 2-3, Sheets 7 and 8.)

2-16. The following sequence is recommended for normal removal of equipment:

a. Boots.

b. Gloves.

c. Outer Garment.

d. Helmet.

e. Suit.

Note

Remove helmet by operating release and lift clear, severing the oxygen lines from suit to helmet. If time permits open protective gar-

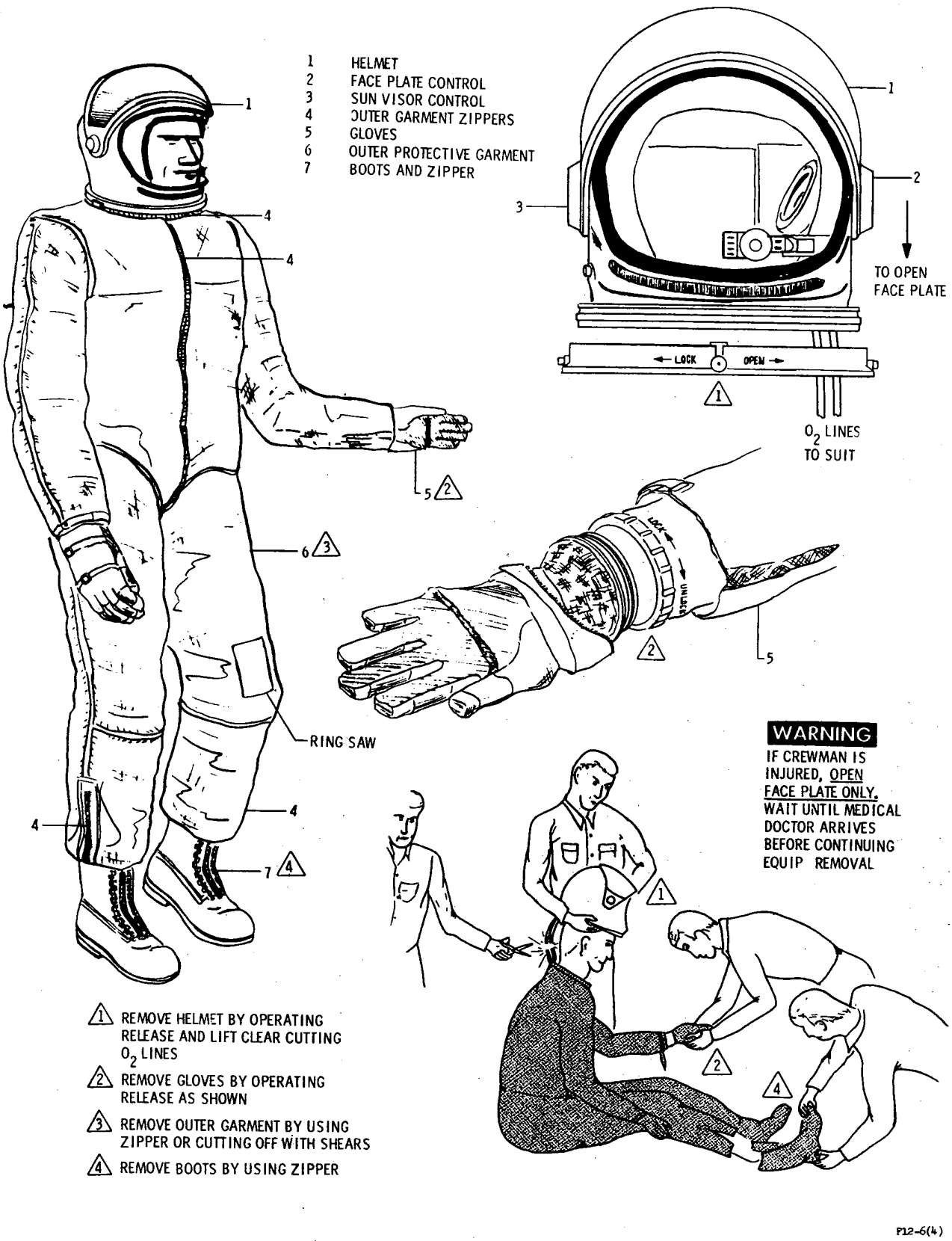
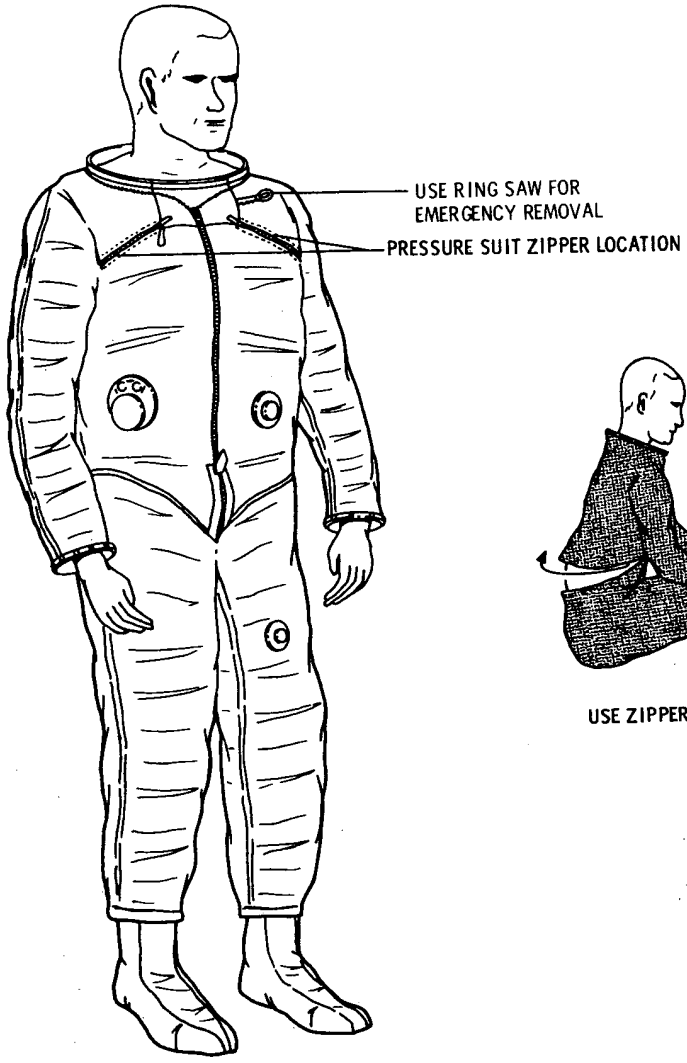
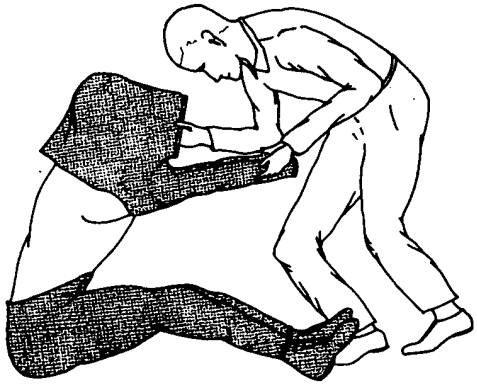
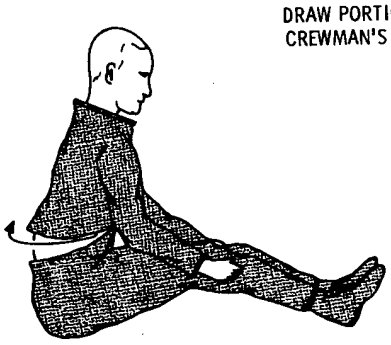


Figure 2-3. Crash Rescue Procedures.
(Sheet 7 of 9)

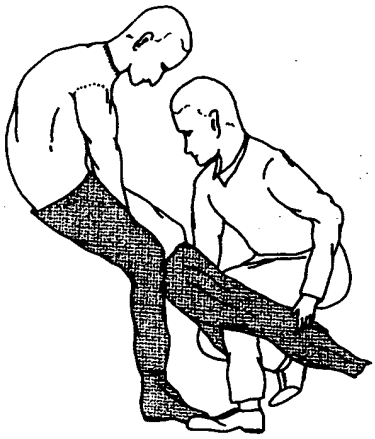




DRAW PORTION OF SUIT OVER CREWMAN'S HEAD



USE ZIPPER TO OPEN PRESSURE SUIT



REMOVE SUIT FROM BODY AND LEGS AS SHOWN

CAUTION

PRIOR TO REMOVING PRESSURE SUIT THE FOLLOWING ITEMS REQUIRE REMOVAL

1 BOOTS
2 GLOVES
3 OUTER PROTECTIVE GARMENT
4 HELMET
5 SUIT

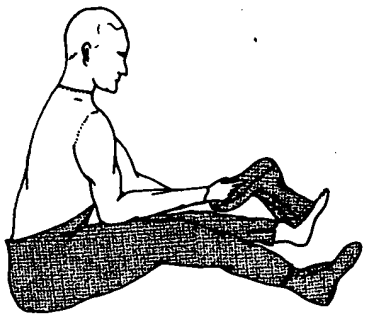


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Figure 2-3. Crash Rescue Procedures.
(Sheet 8 of 9)

ment zipper and pressure suit main zipper for access to oxygen disconnects inside the suit.

2-17. Emergency Pressure Suit Handling.

WARNING

If crew member is injured, open face plate only until a medical doctor arrives.

2-18. In an emergency the pressure suit may be cut off by using the "ring saw" carried in the left leg pocket of the outer garment. This should only be performed upon orders from a medical doctor. (See Figure 2b-3, Sheet 8.)

a. Remove helmet and gloves.

b. Remove handle from end of saw, push saw through suit below neck ring and saw through neck ring on one side.

c. Using same procedure repeat on opposite side of neck ring.

d. Open main suit zipper; using saw, cut through front of suit between zipper ends. Remove top half of suit.

e. The lower part of suit may be cut away from the body.

2-19. Engine Shutdown Procedure. (See Figure 2-3, Sheet 9.)

2-20. Should the emergency condition exist that engines are still developing power, procedures outlined on Figure 2-3, Sheet 9, provide the most practical means, of stopping engines, shutting off oxygen supply and deactivating electrical busses.

2-21. Handling of TEB, Chemical Ignition Fuel During Crash Rescue Procedures. (See Figure 2-4.)

2-22. A chemical ignition system is used in lieu of a more conventional electrical ignition system. Pyrophoric fluid (triethylborane) is contained within tanks, one for each engine located in the nacelle area.

WARNING

Procedures are established in the Flight Manual which require the pilot to dump the chemical fuel during an emergency. There are no restrictions against dumping TEB into a windmilling engine. If this is not possible the condition could become serious. There are no quick opening access panels near the chemical fuel tank and lines. Should

CRASH RESCUE PROCEDURES

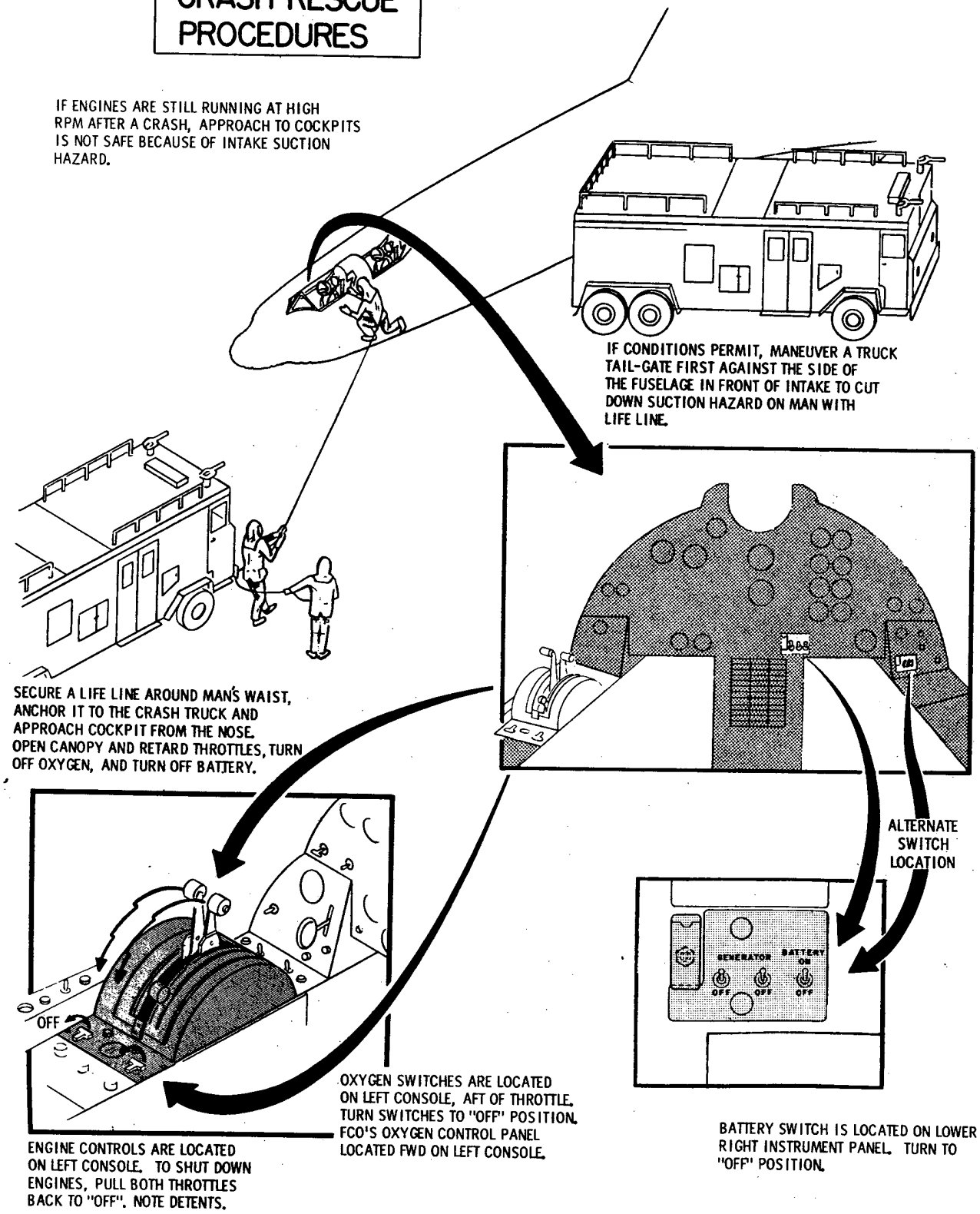
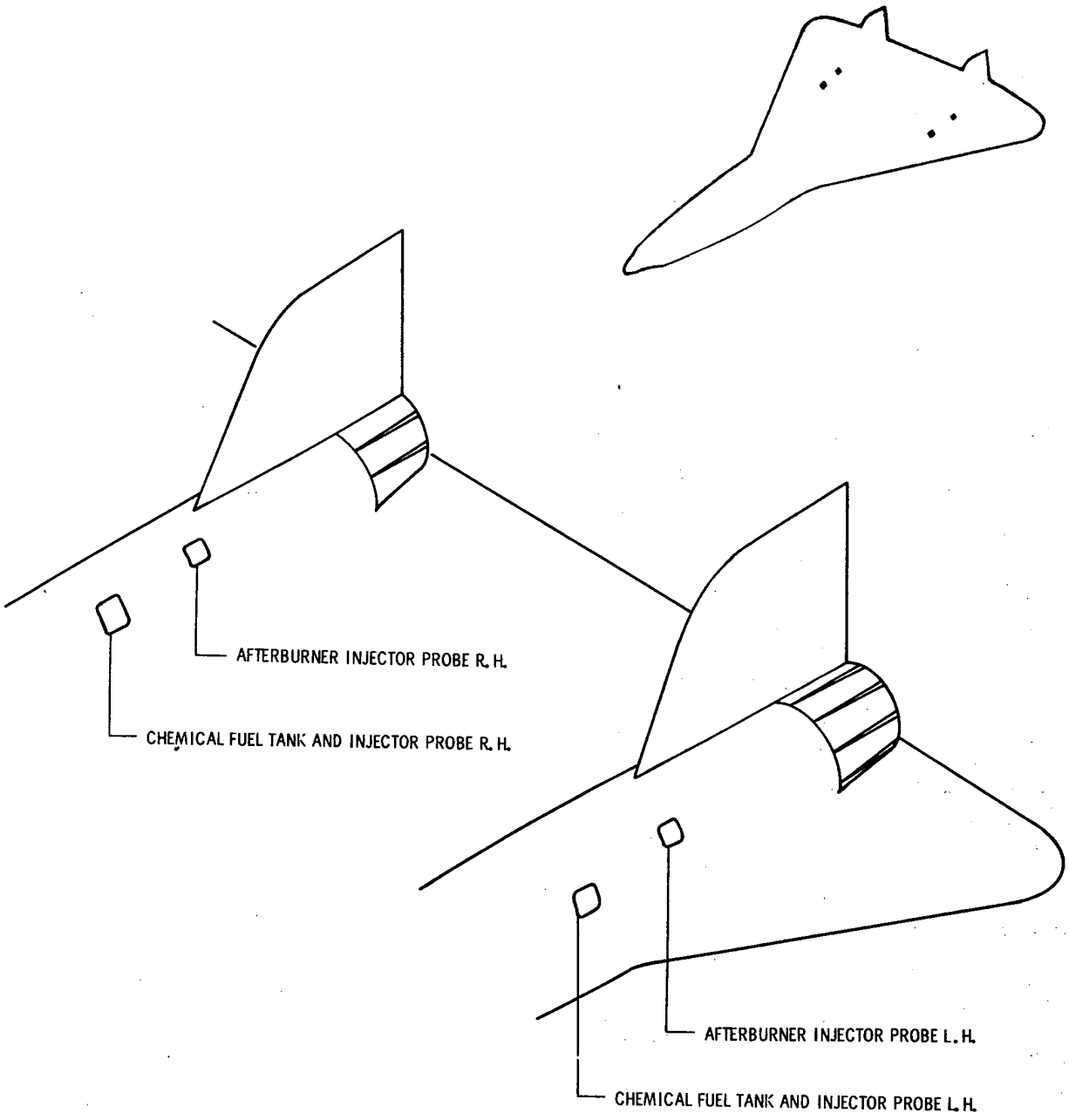


Figure 2-3. Crash Rescue Procedures.
(Sheet 9 of 9)



F12-10

Figure 2-4. TEB Tank and Line Location.

a TEB fire be the primary concern, the immediate area about the tank location must be flooded with water or CO_2 until it can be determined that a hazard no longer exists.

2-23. Damage Prevention.

2-24. The following information consists of data and recommended procedures for the extinguishing of aircraft fires.

2-25. Fire and Explosion Hazards.

2-26. Personnel should be familiar with the fire and explosion hazards of this aircraft so that precautionary measures can be taken. Fires and explosions generally occur when a flammable substance, oxygen (air) and a source of ignition are brought together. The primary flammable substances in this aircraft are fuel, hydraulic fluid, lubricating oil and greases and pyrophoric fluid used in the engine ignition system. Pure oxygen can cause a fire or explosion simply by contact with these substances. Common source of ignition are electric arcs, flame and hot surfaces, The following conditions are particulary hazardous:

a. The mixture of fuel vapor and air in the fuel tanks and vent system is explosive when igntied. However, JP-5 class fuels are not as critical as other type jet fuel also the aircraft tanks are inerted by a blanket of N_2.

b. Fuel, hydraulic fluid or engine oil spraying in a fine mist will explode or flash when ignited.

c. Fires or explosions can be produced spontaneously when flammable substances contact oxygen of high purity.

d. The pyropheric fluid (triethylborane) used in the engine ignition system will ignite immediately upon exposure to air.

2-27. Fire Fighting Precautions.

2-28. Personnel should be alert for possible aircraft ground fires and be prepared to act rapidly and effectively if a fire is discovered. It is recommended that all personnel become familiar with the following types of fire hazards and precautions.

a. How access is gained quickly to apply extinguishing agent.

b. How to notify professional fire fighting personnel immediately.

c. The agents that are recommended for different kinds of fires and how to operate extinguishing equipment eg, area water, water fog, CO_2, DCP or chemical and mechanical foams.

d. Chemical and mechanical foam agents leave deposits, if possible these agents should be removed by flushing with water.

CAUTION

Ansul Plus Fifty B Dry Chemical Powder should not be used except in an emergency. If used, all traces of residue shall be completely removed by spraying with JP5 Class Fuel, flushing thoroughly

with running water and wiping as dry as possible.

The following agents are not approved as fire extinguishing agents. Inadvertent use must be reported to the aircraft recovery team.

(1). ANSUL MET-L-X Dry Chemical.

(2). Chlorobromomethane (CBM).

(3). Soda and acid type extinguishers.

e. Availability and serviceability of all extinguishing equipment required.

2-29. General procedures to be followed when a fire is discovered:

a. Apply proper agent to fire as soon as possible.

b. For engine fires, follow procedures as outlined on Figure 2-5.

c. Position yourself up wind and do not stand in flammable liquids when applying agents.

d. Move handling equipment away so that fire fighting equipment will not be hampered.

e. When all available agent is expended and/or fire is out of control, evacuate the area because of the danger of explosion.

2-30. Oxygen Fires.

2-31. Oxygen can cause spontaneous ignition and explosions when it comes in contact with flammable substances. Fires aided by oxygen will burn intensly and spread rapidly, therefore, CO_2 or DCP (dry chemical powder) should be applied to slow the progress of these fires. However, effective extinguishing of oxygen-supplied fires generally require foam. Sources of 100 per cent oxygen in the aircraft are the bottles or containers located in the nose wheel compartment area.

Note

The oxygen system may be a liquid or gaseous type.

2-32. Engine Fires. (See Figure 2-5.)

2-33. Engine or nacelle fires may not be indicated by the engine fire and/or overheat system. Personnel should be alert for this condition at all times during engine ground operation.

2-34. Chemical Ignition Fuel (TEB) Fires.

2-35. A fire will occur when triethylborane (TEB) is exposed to air as a result of line rupture or leaks. To control a TEB fire, the fire fighter should attempt to confine the fire by blanketing the burning liquid with foam, water spray or CO_2.

WARNING

Carbon tetrochloride and halogenated hydrocarbons react with TEB and should never be used to combat fires.

Note

Tests have indicated that TEB will ignite when exposed to air at all temperatures to be encountered during hanlding.

2-36. Hot Aircraft Wheels.

2-37. When an aircraft is subject to excessive braking action, esperially on a maximum brake landing or drag chute failure, the following procedures shall be rigidly adhered to :

FIRE FIGHTING PRECAUTIONS

WARNING PRECAUTIONS LISTED BELOW SHALL BE OBSERVED, IN ORDER TO AVOID SERIOUS INJURY TO INVOLVED PERSONAL.

1 FIGHT FIRE, WHEN POSSIBLE FROM UP-WIND SIDE.

2 DO NOT STAND IN FLAMMABLE LIQUIDS.

3 DO NOT PUT YOURSELF IN POSITION WHERE YOU CAN BE TRAPPED BY FIRE OR FUMES.

4 USE CAUTION TO AVOID SLIPPING ON WET SURFACES

5 USE DRY CHEMICAL POWDER OR CO_2 AGENT IF AVAILABLE

6 IF CO_2 OR OTHER APPROVED LIQUID EXTINGUISHED AGENTS ARE USED, USE EXTREME CARE THAT DIRECT BLAST OF COLD LIQUID OR GAS DOES NOT CONTACT HOT METAL SURFACES. STRESS EXPLOSIONS CAN BE CAUSED WITH RESULTANT INJURY TO PERSONNEL.

CLEANING PROCEDURE

AFTER FIRES ARE EXTINGUISHED REMOVE CHEMICAL POWDER FROM AFFECTED AREAS OF AIRCRAFT AS FOLLOWS:

1 WIPE AFFECTED AREAS WITH CLEAN CLOTH. USE AIR BLAST TO CLEAN AREAS NOT READILY ACCESSIBLE TO CLOTH WIPING.

2 WASH ALL AFFECTED AREAS THOROUGHLY.

3 RINSE AFFECTED AREAS WITH APPROVED ANTI-RUST SOLUTION AND RINSE WITH CLEAN WATER.

4 THOROUGHLY CLEAN AND INSPECT ALL ENGINE PARTS IN THE AREA WHICH THE CHEMICAL AGENT HAS BEEN INTRODUCED. THIS WILL INCLUDE A THOROUGH ENGINE INSPECTION WHENEVER POWDER WAS INTRODUCED SO THAT IT PASSES THROUGH THE ENGINE.

FIRE IN ENGINE AIR INLET DUCT

THESE FIRES USUALLY OCCUR DURING STARTING OR WHILE ENGINE IS RUNNING. IN CASE OF FIRE PROCEED AS FOLLOWS:

1 THROTTLE - ADVANCE PART WAY TO MILITARY POWER.

NOTE

IF FIRE DOES NOT BLOW OUT OR PERSISTS, SHUT DOWN ENGINE AND FIGHT AS OIL FIRE.

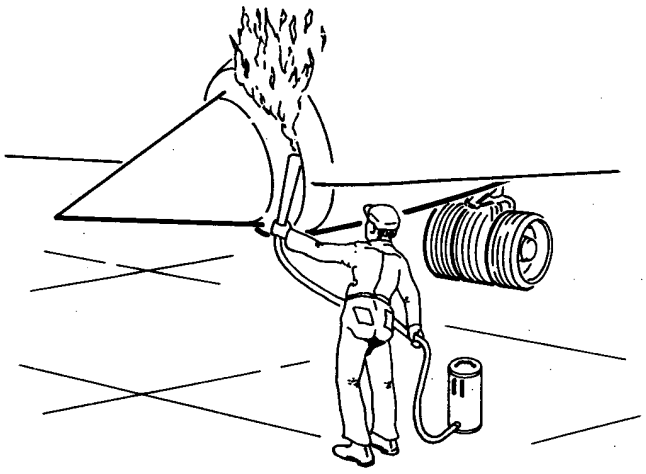
2 THROTTLE - OFF

3 EMERGENCY FUEL SHUT - OFF SWITCH - OFF (GUARD UP), (ALLOW 5 SECONDS FOR VALVE TO CLOSE).

4 BATTERY SWITCH - OFF.

5 LEAVE COCKPIT AS SOON AS POSSIBLE.

6 INTRODUCE DRY CHEMICAL POWDER OR CO_2 AGENT INTO THE ENGINE AIR INLET DUCT



FIRE IN ENGINE NACELLE

IF FIRE OCCURS WHILE ENGINE ACCESS DOORS ARE OPEN (AS DURING INITIAL ENGINE RUN), FIRE FIGHTING IS SIMPLIFIED. WHEN ENGINE ACCESS DOORS ARE CLOSED, ENTRY FOR THE EXTINGUISHING AGENT IS THROUGH THE LOWER "SUCK IN" DOORS AT THE ACCESSORY SECTION. IN CASE OF FIRE PROCEED AS FOLLOWS:

1 CHEMICAL IGNITION PURGE SWITCH - DUMP (SWITCH UP).

CAUTION

ACTUATE DUMP SWITCH IMMEDIATELY TO ENSURE HYDRAULIC PRESSURE AND POWER WILL BE AVAILABLE TO DUMP THE CIS TANK. POWER WILL BE REQUIRED FOR UP TO 10 SECONDS.

2 THROTTLE - OFF.

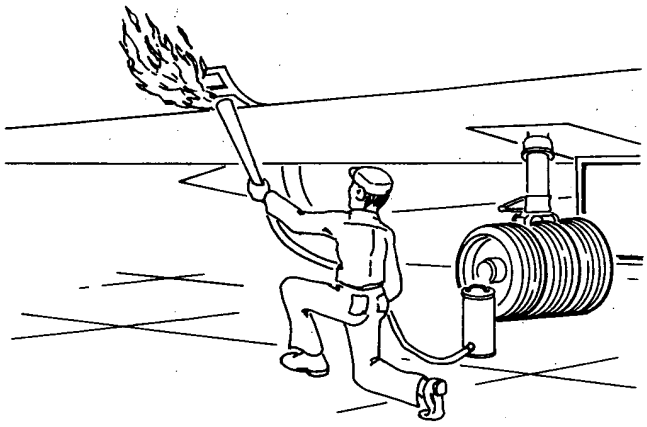
3 EMERGENCY FUEL SHUTOFF SWITCH-OFF (GUARD UP), (ALLOW 5 SECONDS FOR VALVE TO CLOSE).

4 BATTERY SWITCH - OFF.

5 LEAVE COCKPIT AS SOON AS POSSIBLE.

6 INTRODUCE DRY CHEMICAL POWDER OR CO_2 AGENT INTO ACCESS DOOR OR "SUCK IN" DOOR OPENING

7 AS SOON AS PRACTICAL, OPEN ACCESS DOOR ON BOTTON OF FUSELAGE AND CHECK FOR EVIDENCE OF UNEXTINGUISHED FIRE.



F12-18(1)

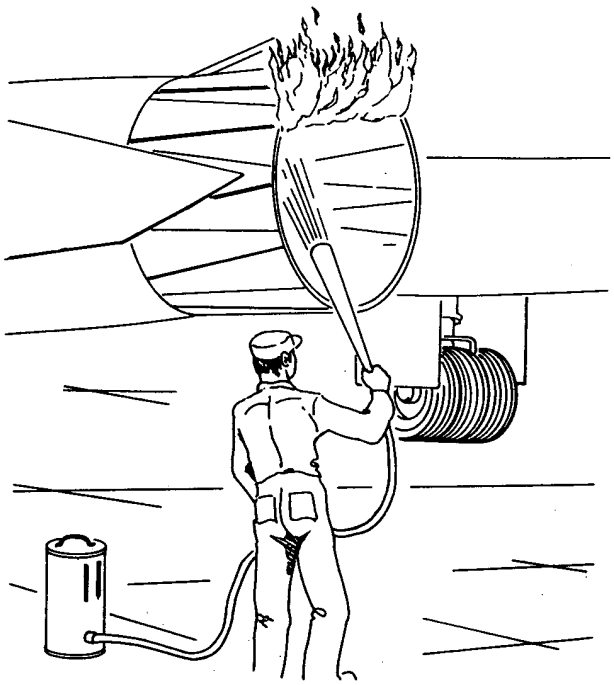
Figure 2-5. Engine and Wheel Brake Fires. (Sheet 1 of 2)

TAIL PIPE FIRES USUALLY RESULT FROM EXCESS FUEL COLLECTING IN THE AFTERBURNER SECTION AFTER SHUT-DOWN, OR DURING STARTING CYLCLES. IN CASE OF FIRE (WITH GROUND START UNIT ENGAGED) PROCEED AS FOLLOWS.

1 THROTTLE OFF.

2 EMERGENCY FUEL SHUT-OFF (GUARD UP).

3 IF POSSIBLE MAINTAIN OPERATION UNTIL ALL EVIDENCE OF FIRE HAS DISAPPEARED. IF FIRE DOES NOT BLOW OUT OR PERSISTS DISCONTINUE START OPERATION AND FIGHT AS OIL FIRE BY APPLYING CO_2 IN SHORT BURST INTO AFTERBURNER SECTION.

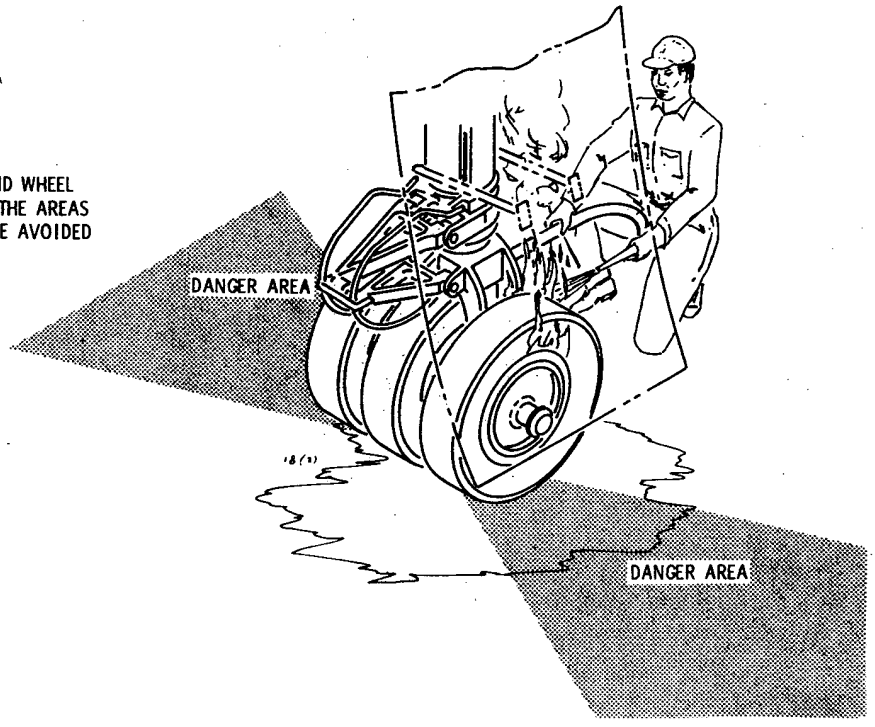


WARNING

EXCESSIVE BRAKE HEATING WEAKENS TIRE AND WHEEL STRUCTURE AND INCREASES TIRE PRESSURE. THE AREAS INBOARD AND OUTBOARD OF WHEEL SHOULD BE AVOIDED

NOTE

USE WATER, WATER FOG, CO_2 OR DCP, FOR EXTINGUISHING WHEEL BRAKE FIRES.



F12-18(2)

Figure 2-5. Engine and Wheel Brake Fires. (Sheet 2 of 2)

2-38. Wheel Brake Fires. (See Figure 2-5.)

WARNING

Excessive brake heating tends to weaken tire and wheel structure and increase tire pressure. The area inboard and outboard of the wheel should be avoided.

a. Apply DCP, water or water fog to brake and wheel.

2-39. Health Hazards.

2-40. Liquid Nitrogen.

2-41. Liquid nitrogen is contained in two flasks located within the nose landing gear compartment. Contact with this liquid shall be avoided as direct skin contact can result in extremely painful sores, which resemble burns. Also, symptoms of hypoxia can occur from prolonged contact with escaping GN_2 in confined areas.

2-42. Ammonia.

2-43. Ammonia gas is poisonous in strong concentrations, and can cause severe damage to the tissues of the eyes, nose, throat and lungs. Aqua ammonia solution is very caustic, and can be damaging to the skin tissue if not washed off immediately after contact.

2-44. Aqua ammonia solution is contained within a compartment located on the right lower fuselage section just forward of the wing leading edge.

2-45. Triethylborane (TEB).

2-46. TEB will cause serious thermal burns upon skin contact. The burned area may provide highly absorbent area for this compound. Therefore, skin contact must be avoided. Inhalation of these compounds is extremely unlikely due to the pyrophoric characteristics. However, the fumes are toxic. Two TEB tanks, one for each engine, contain 600 cc of fluid each when initially serviced. (See Figure 2-4 for tank location.)

2-47. Should personnel contact be made with TEB, a source of reasonably clean water must be used to flush burning fuel from a person. Prevent contamination of the burned area if at all possible. If TEB contacts the eyes, flush immediately with large quantities of water for 15 to 20 minutes or until medical personnel arrive.

SECTION III

GROUND HANDLING

TABLE OF CONTENTS

SECTION III

GROUND HANDLING

LIST OF ILLUSTRATIONS

3-1. GROUND HANDLING.

3-2. This section provides the correct handling procedures using available equipment to properly handle the aircraft during emergency conditions. All safety precautions which provide for safe handling of the aircraft shall be strictly adhered to.

3-3. Aircraft Lifting.

WARNING

Ensure that all electrical power is turned off.

CAUTION

Do not climb on or off aircraft, unless necessary.

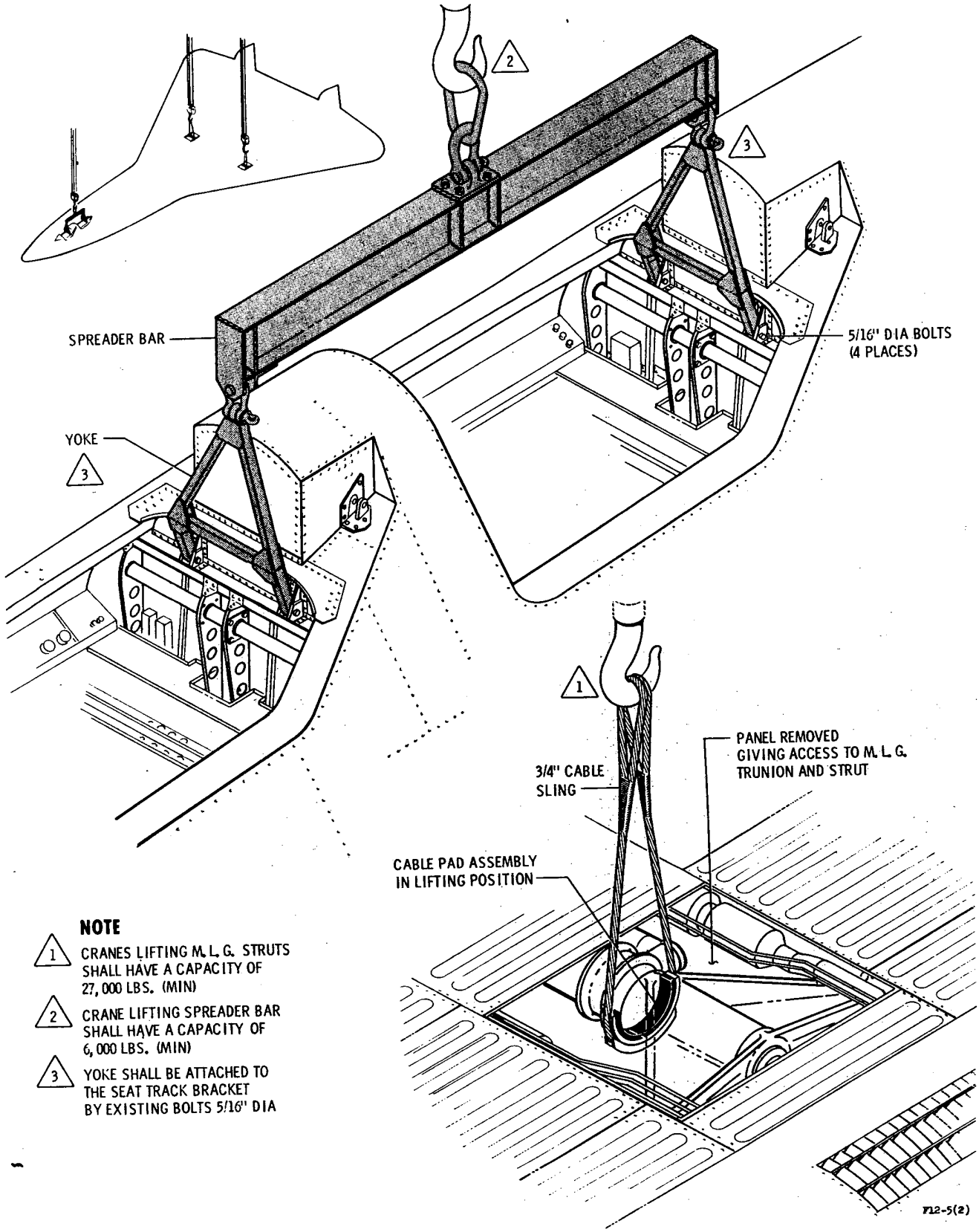
3-4. Crane Lifting. (See Figure 3-1.)

3-5. If the crash site is accessible for a crane using cables, bolts, etc. an aircraft setting on the ground with the landing gear retracted or collapsed may be raised as follows :

a. Remove both cockpit seats and seat guide rails.

WARNING

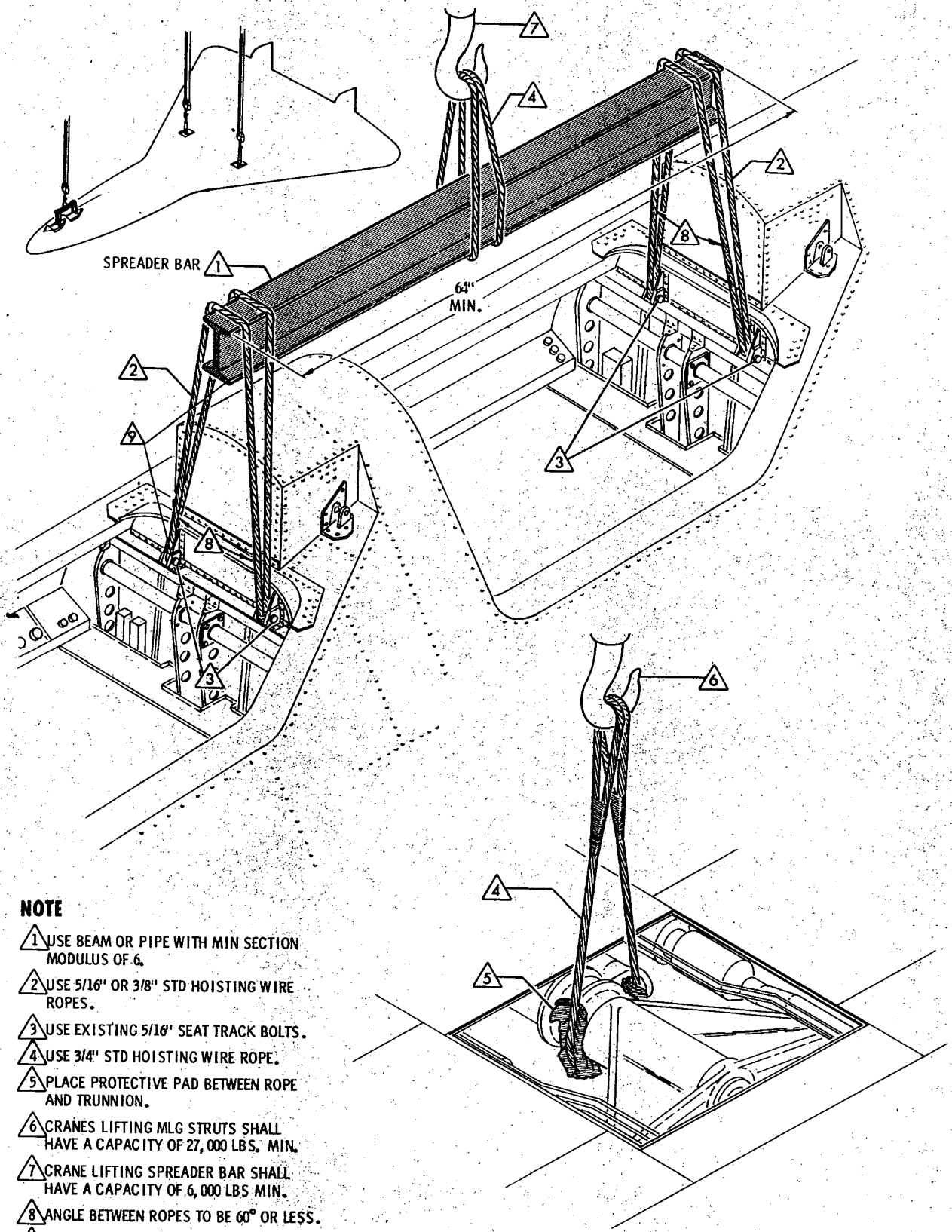
Ensure that all lines and leads to both seats are severed before removing bolts securing seats to tracks and rails.



NOTE

1. CRANES LIFTING M. L. G. STRUTS SHALL HAVE A CAPACITY OF 27,000 LBS. (MIN)
2. CRANE LIFTING SPREADER BAR SHALL HAVE A CAPACITY OF 6,000 LBS. (MIN)
3. YOKE SHALL BE ATTACHED TO THE SEAT TRACK BRACKET BY EXISTING BOLTS 5/16" DIA

Figure 3-1. Crane Lifting.
(Sheet 1 of 2)



NOTE

1. USE BEAM OR PIPE WITH MIN SECTION MODULUS OF 6.
2. USE 5/16" OR 3/8" STD HOISTING WIRE ROPES.
3. USE EXISTING 5/16" SEAT TRACK BOLTS.
4. USE 3/4" STD HOISTING WIRE ROPE.
5. PLACE PROTECTIVE PAD BETWEEN ROPE AND TRUNNION.
6. CRANES LIFTING MLG STRUTS SHALL HAVE A CAPACITY OF 27,000 LBS. MIN.
7. CRANE LIFTING SPREADER BAR SHALL HAVE A CAPACITY OF 6,000 LBS MIN.
8. ANGLE BETWEEN ROPES TO BE 60° OR LESS.
9. MINIMUM CLEARANCE FROM BOTTOM OF SPREADER BAR TO SEAT ATTACHMENTS 25 INCHES

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Figure 3-1. Crane Lifting.
(Sheet 2 of 2)

b. Figure 3-1 presents a typical spreader bar and "yoke" installation for nose section and a cable attachment to each main landing gear trunion and strut.

c. Cranes and cables lifting the main gear struts must have a capacity of 27,000 pounds minimum each.

d. Cranes, spreader bar and cables lifting at the cockpits seat brackets shall have a capacity of 6,000 pounds minimum.

3-6. Pneumatic Bag Lifting. (See Figure 3-2.)

3-7. If the crash site is inaccessible for a crane, or lifting cables, spreader bars, bolts, etc. are unavailable, the aircraft may be lifted with pneumatic type lifting bag as follows :

a. Secure aircraft with block and tackle and ropes to prevent aircraft moving forward, backward or either side while being lifted.

Note

All mooring ropes must be of sufficient length to permit an upward movement of the aircraft without tightening the ropes. If possible, all ropes should have padding or covering at structure contact points.

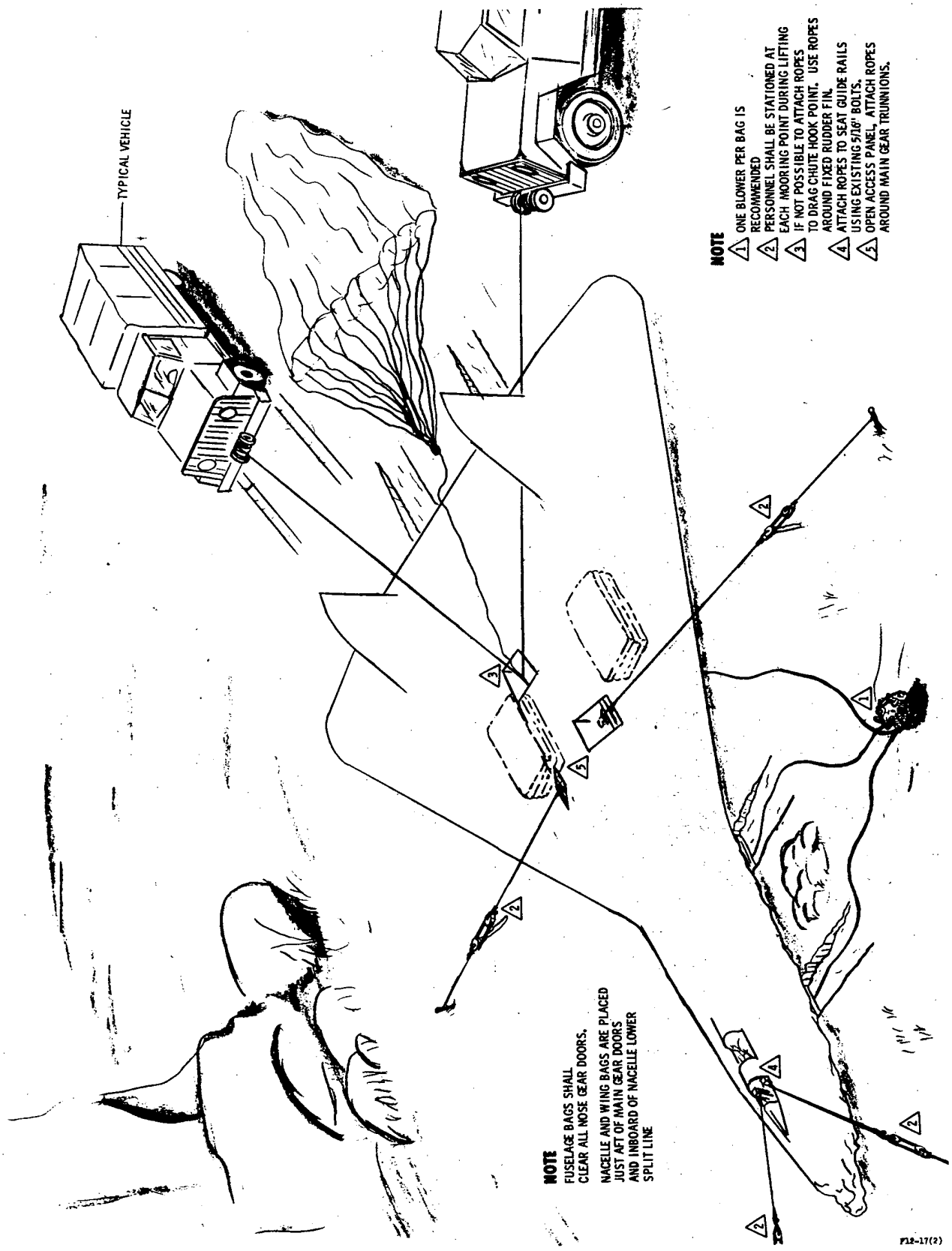

Figure 3-2. Pneumatic Bag Lifting.
(Sheet 1 of 2)

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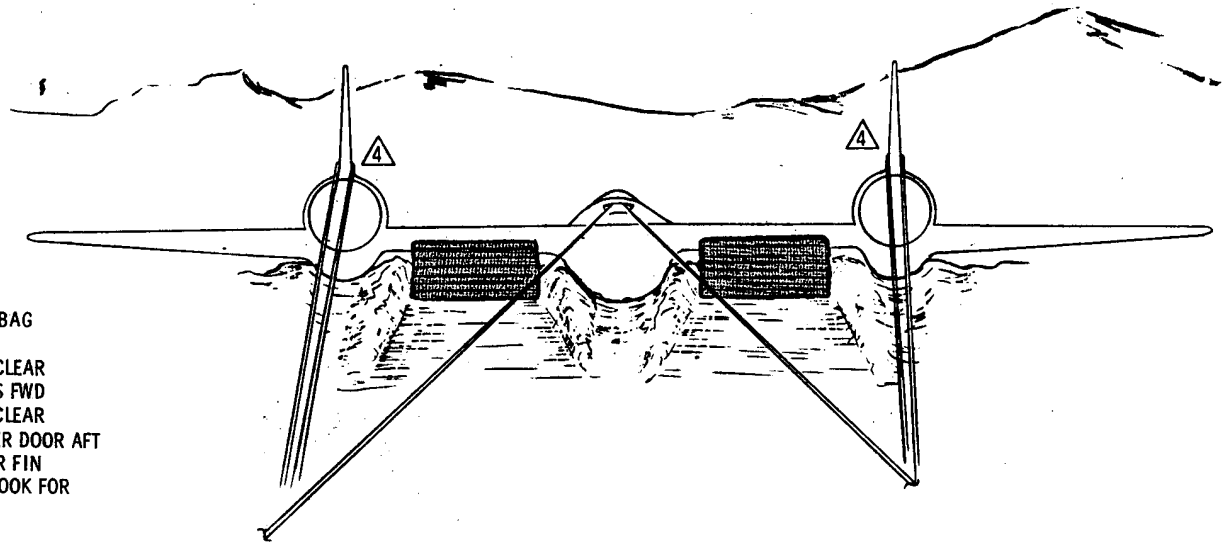


NOTE

1. ONE BLOWER PER BAG RECOMMENDED
2. BAG LOCATED TO CLEAR NOSE GEAR DOORS FWD
3. BAG LOCATED TO CLEAR RETRACT CYLINDER DOOR AFT
4. USE FIXED RUDDER FIN OR DRAG CHUTE HOOK FOR AFT MOORING

CAUTION

RAISE AIRCRAFT UNTIL FUSELAGE IS APPROXIMATELY 80 INCHES ABOVE TERRAIN. SHORE UP AS NECESSARY.

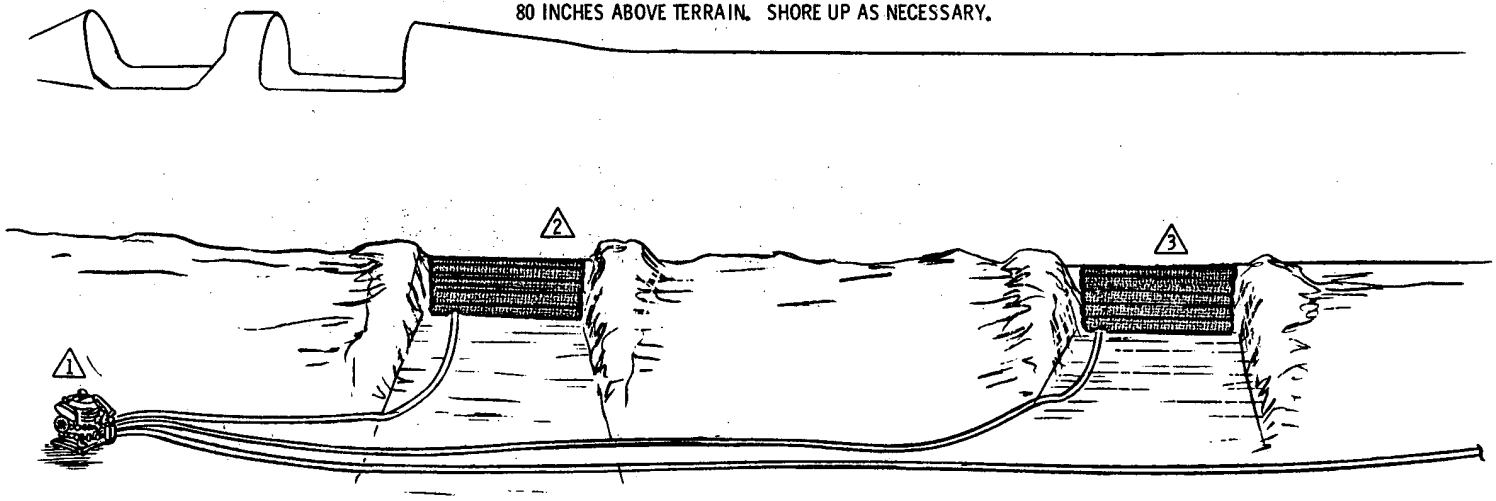


Figure 3-2. Pneumatic Bag Lifting. (Sheet 2 of 2)

b. If aircraft is in soft terrain it may be necessary to dig out under nacelles and fuselage in order to place lifting bags in position.

c. Spread a tarpulin under each lift point where bags will be placed.

d. Position a lift bag on each tarpulin.

Note

Prior to positioning bag, check underside of aircraft for sharp projections that may damage bag. If any sharp or rough projections are found, place pads between bags and structure to prevent damage to bag.

e. Connect hoses to inlet connection of bag and outlet connection of engine driven blower(s). Blower(s) should deliver 40 cu. ft. per minute.

CAUTION

Before starting blower(s), check all mooring ropes to ensure bags are located for greatest surface contact between bag and structure.

f. Inflate all bags simultaneously, unless terrain is such that this would cause aircraft to shift. As bags are inflated, slacken mooring ropes to permit aircraft to rise evenly.

CAUTION

Keep enough tension on mooring ropes to prevent aircraft from shifting.

g. When aircraft has reached sufficient height, support the aircraft on its main gear. Each bag should lift 24,000 pounds, 1 to 6 feet at 5 psi.

CAUTION

Do not attempt to support aircraft for too long a time. Bags do not have adequate pressure-holding qualities to permit them to be used as permanent supports.

h. When aircraft is adequately supported, remove bags, pads, tarpulins and mooring ropes.

3-8. Emergency Extension of Landing Gear. (See Figure 3-3.)

3-9. Once the aircraft has been raised to gear extension height plus approximately six inches above terrain, the following procedures shall be followed to extend the landing gear:

CAUTION

Ensure that the main and nose landing gear doors are clear.

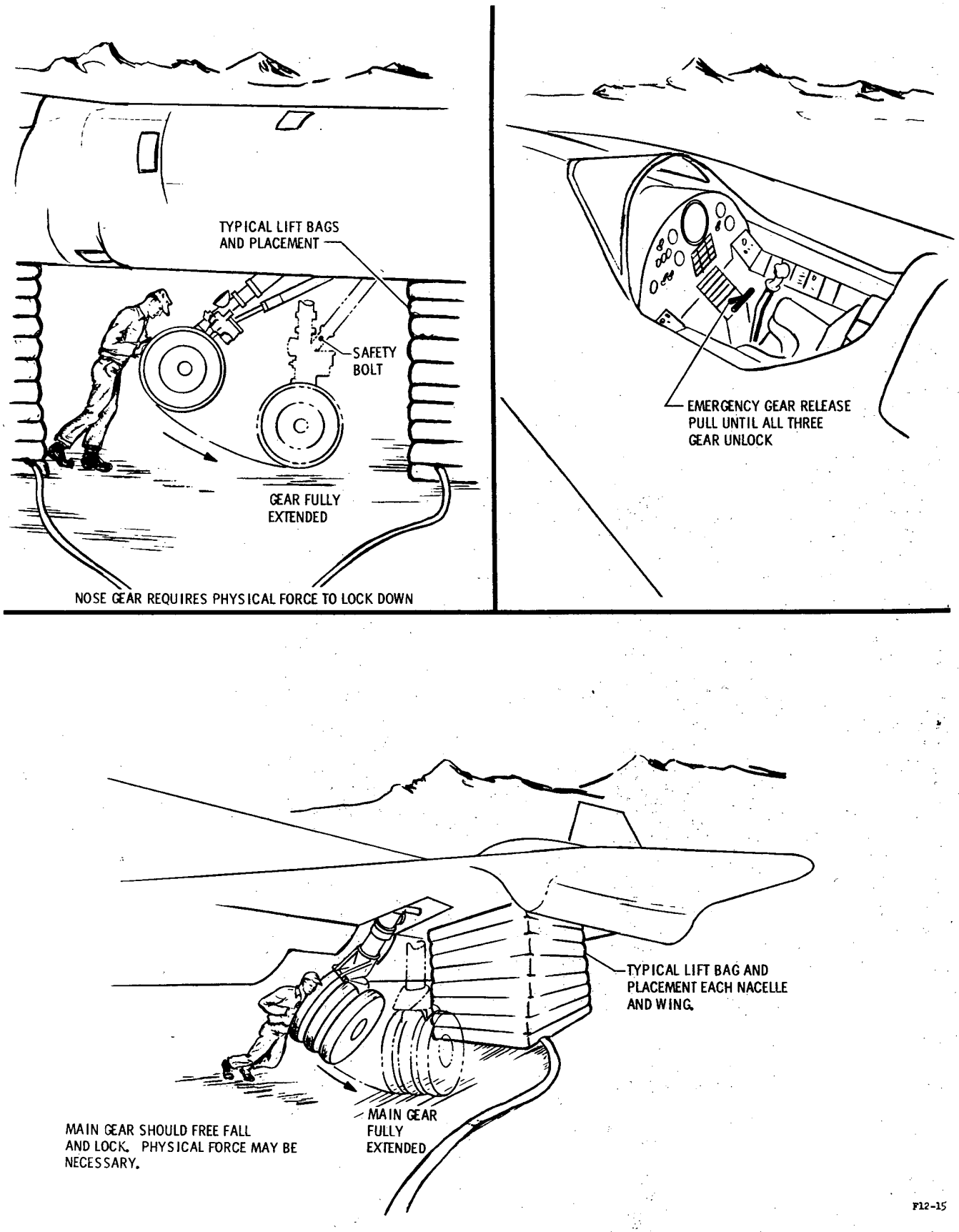


Figure 3-3. Emergency Landing Gear Extension.

a. Pull "T" handle, located on pedestal at pilot's cockpit, to break all three gear out of the up and locked position.

b. Both main gear should free fall and lock down within a few seconds without any physical force applied. However, should the main gear not lock down apply force at the axle to complete the down and locked procedure.

c. The nose gear will unlock and extend partially, apply force to the nose gear to complete the down and locked procedure.

d. Install bolts at each gear lock location and secure with lock wire. or rope.

3-10. Main Gear Towing. (See Figure 3-4.)

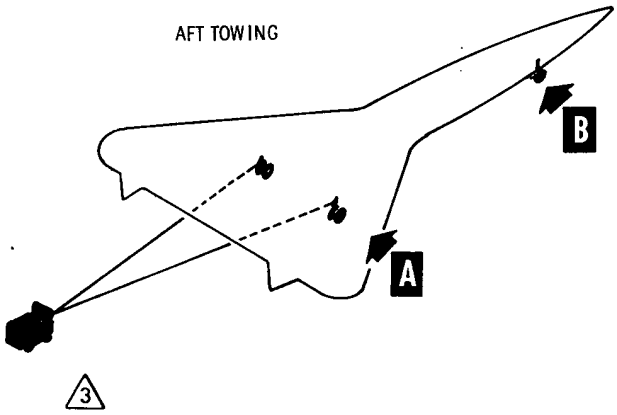
3-11. When towing forward from the main gear wheels, under emergency conditions, the following procedure shall be used :

WARNING

Ensure that each main gear has a bolt installed at each gear lock location.

CAUTION

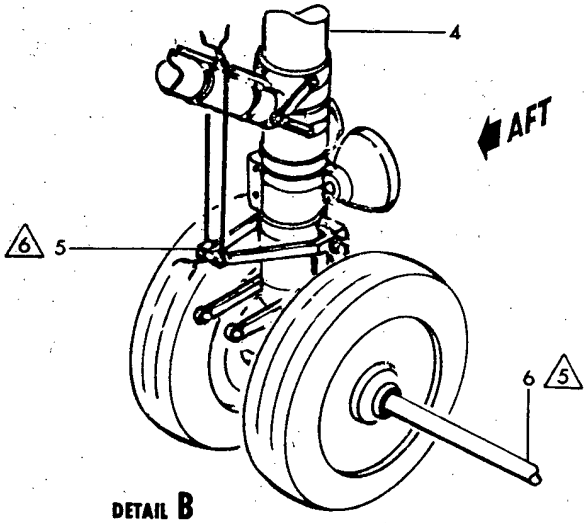
Disconnect nose gear scissor links prior to any towing operation.



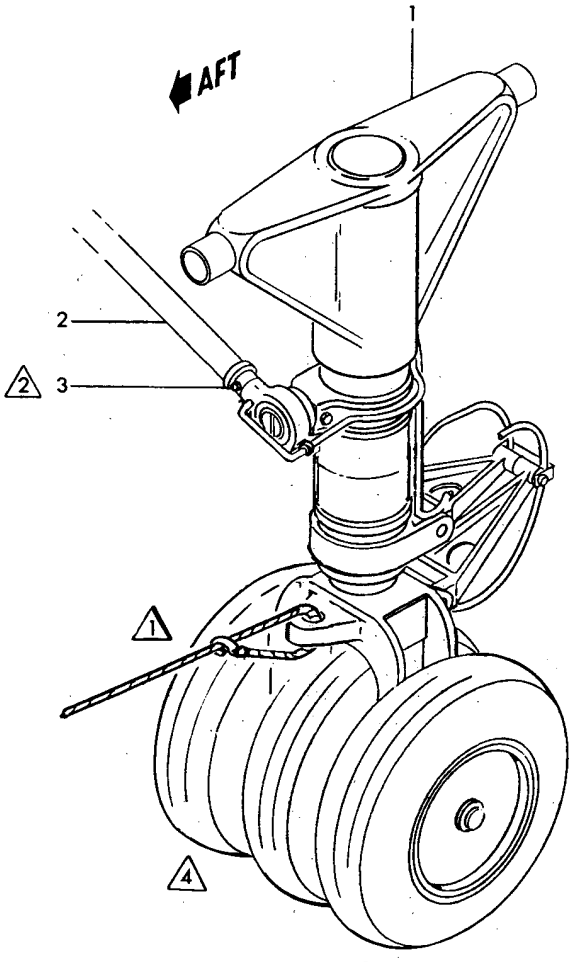
1 MAIN GEAR ASSEMBLY
2 ACTUATING CYLINDER
3 GEAR SAFETY BOLTS
4 NOSE GEAR
5 UPPER SCISSORS TIED
6 6 FOOT BAR

NOTE

1. USE 3/8" STANDARD WIRE ROPE 90 TO 100 FEET LONG.
2. GEAR SAFETY BOLTS SHALL BE INSTALLED WHEN TOWING AIRCRAFT.
3. TOW VEHICLE SHOULD BE 6 TO 8 FEET AFT OF FUSELAGE TIP.
4. DO NOT USE BLOCKS TO STOP AIRCRAFT DURING AFT TOWING.
5. A 6 FOOT BAR INSERTED IN AXLE OF NOSE GEAR MAY BE USED TO TURN AIRCRAFT.
6. SCISSORS TO BE DISCONNECTED. TIE UPPER SCISSORS WITH ANYTHING USABLE.



DETAIL B
NOSE GEAR



DETAIL A

MAIN LANDING GEAR
ARRANGEMENT (TYP. BOTH GEARS)

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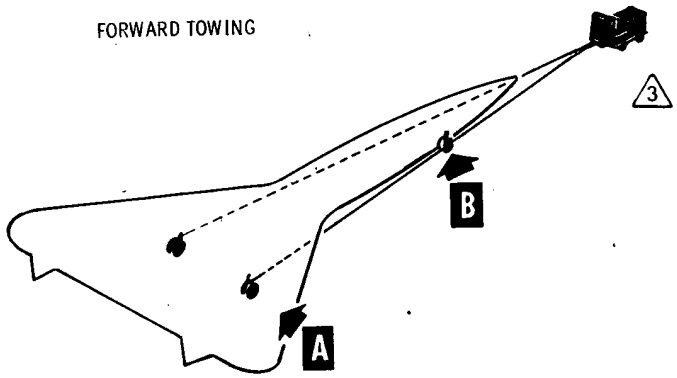
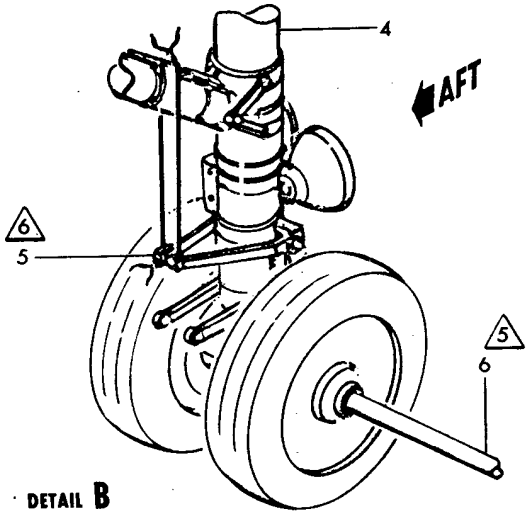
Figure 3-4. Main Gear Towing.
(Sheet 1 of 2)



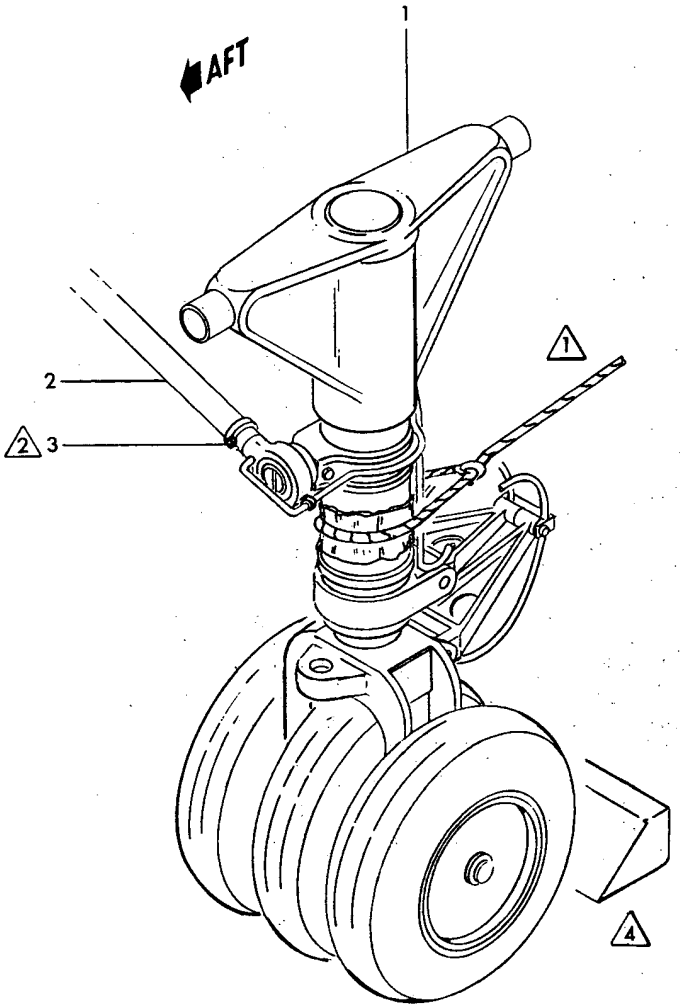
1 MAIN GEAR ASSEMBLY
2 ACTUATING CYLINDER
3 GEAR SAFETY BOLTS
4 NOSE GEAR
5 UPPER SCISSORS TIED
6 6 FOOT BAR

NOTE

1. USE 3/8" STANDARD WIRE ROPE 160 TO 170 FEET LONG.
2. GEAR SAFETY BOLTS SHALL BE INSTALLED WHEN TOWING AIRCRAFT.
3. TOW VEHICLE SHOULD BE 6 TO 8 FEET FORWARD OF NOSE.
4. BLOCKS MAY BE USED TO STOP AIRCRAFT.
5. A 6 FOOT BAR INSERTED IN AXLE OF NOSE GEAR MAY BE USED TO TURN AIRCRAFT.
6. SCISSORS TO BE DISCONNECTED. TIE UPPER SCISSORS WITH ANYTHING USABLE.



DETAIL B
NOSE GEAR



DETAIL A
MAIN LANDING GEAR
ARRANGEMENT (TYP. BOTH GEARS)

F21-9(2)

Figure 3-4. Main Gear Towing.
(Sheet 2 of 2)

a. Insert a bar of sufficient length into the nose gear axle to permit steering during towing.

b. Attach suitable cables or ropes around main gear struts with protective pads.

c. Connect cables or ropes to a tractor.

Note

Two tractors may be used, one pulling on each gear.

d. Pickup the load with the tractor(s) as smoothly as possible in order to keep dynamic loads at a minimum.

CAUTION

One man shall be stationed at each gear location with a suitable block. The aircraft has no parking brake and blocks may be used as stopping devices.

3-12. When towing aft from the main gear wheels, under emergency conditions, the following procedure shall be used:

a. Attach suitable cables or ropes around main gear struts with protective pads.

b. Connect cables or ropes to a tractor.

Note

Two tractors may be used, one pulling on each gear.

c. Pickup the load with the tractor(s) as smoothly as possible in order to keep dynamic loads at a minimum.

CAUTION

Blocks shall not be used as stopping devices when towing in the aft direction, unless absolutely necessary to prevent further damage.